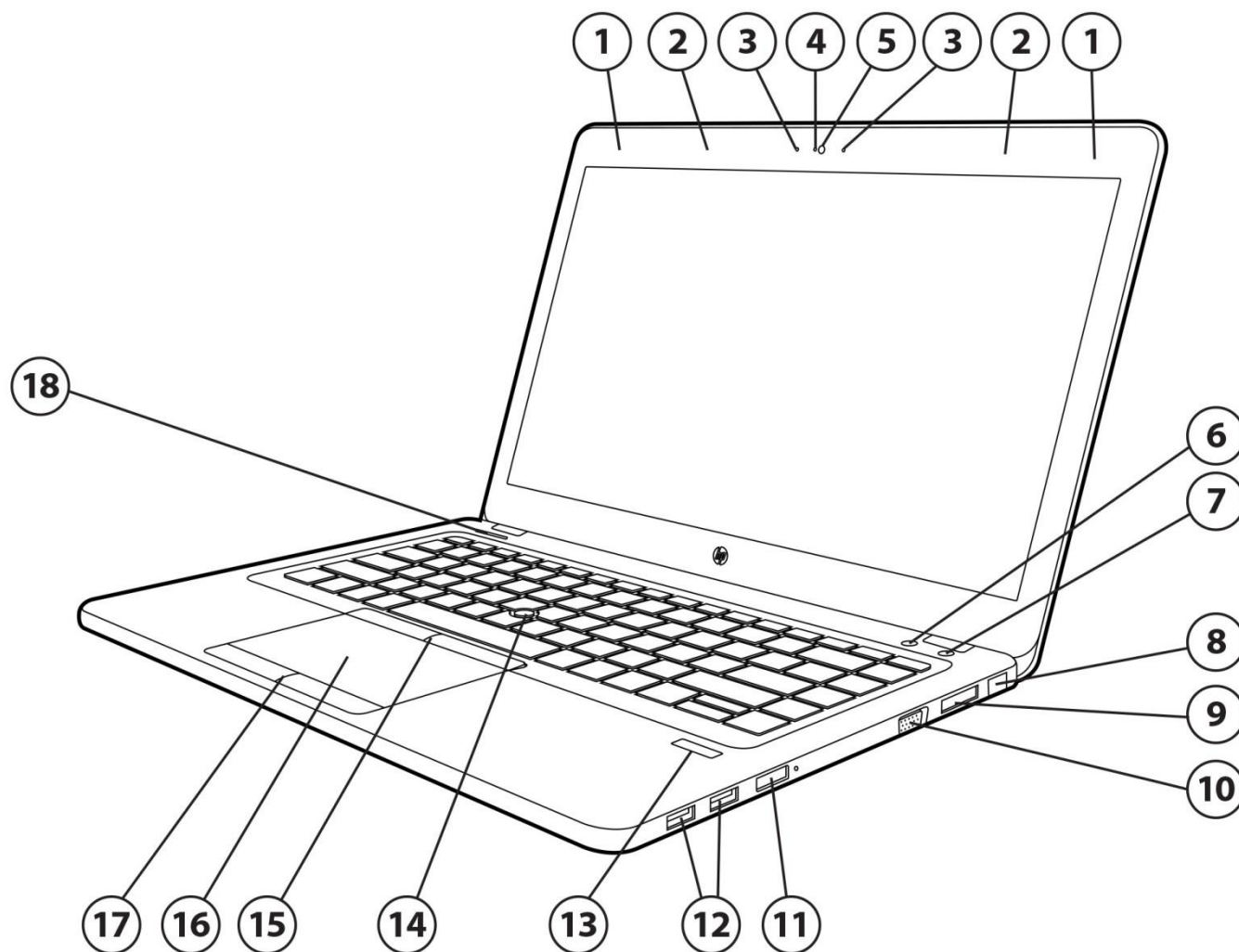


### Overview

#### HP EliteBook Folio 9480m Notebook PC

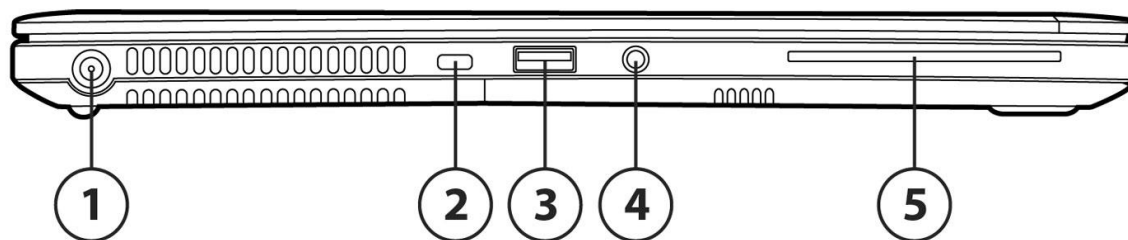


- |                                              |                                      |
|----------------------------------------------|--------------------------------------|
| 1. WLAN antennas (2)                         | 10. VGA/external monitor connector   |
| 2. WWAN antennas (2)                         | 11. DisplayPort 1.2a                 |
| 3. Dual-microphone array                     | 12. (2) USB 3.0 ports                |
| 4. Webcam light (only with optional webcam)  | 13. HP Fingerprint Reader (optional) |
| 5. Optional 720p HD webcam                   | 14. Pointstick                       |
| 6. Wireless on/off button with LED indicator | 15. Pointstick pick buttons          |
| 7. Volume mute button with LED indicator     | 16. Touchpad                         |
| 8. RJ-45/Ethernet port                       | 17. Touchpad pick buttons            |
| 9. Docking connector                         | 18. Power button                     |



### Overview

#### Left View



- |    |                       |    |                                 |
|----|-----------------------|----|---------------------------------|
| 1. | Power connector       | 4. | Headphone/Microphone combo port |
| 2. | Security lock slot    | 5. | Smart Card Reader               |
| 3. | USB 3.0 charging port |    |                                 |



### Overview

#### AT A GLANCE

- Windows 8.1 Pro 64, Windows 8.1 64, Windows 7 Professional 64 (available through downgrade rights from Windows 8.1 Pro 64), Ubuntu Linux or FreeDOS 2.0
- Magnesium display enclosure, magnesium-reinforced chassis, wear-resistant platinum-colored HP DuraFinish, HP DisplaySafe frame, HP DuraKeys, precision metal-alloy hinges, aluminum keyboard deck, and chemically strengthened glass touchpad
- Ensured durability through MIL-SPEC 810G testing, meeting the military standard Mil-Std-810G for high temperature, low temperature, altitude, humidity, temperature shock, dust, drop, random vibration, and shock, plus an additional 115,000 hours of reliability testing through HP's Total Test Process
- Choice of 4<sup>th</sup> generation Intel® Core™ i7 and i5 with Turbo Boost Technology
- Integrated Intel® HD Graphics 5000 (Intel® Core™ i7-4650U processor only) or Intel® HD Graphics 4400
- 14.0-inch diagonal HD or HD+ Standard Viewing Angle LED-backlit display
- Choice of 7200 rpm user-removable hard drive (up to 500 GB) with HP 3D DriveGuard, 500 GB 7200 rpm Self Encrypting Hard Drive, 256 GB Self Encrypting Solid State Drive, 240 GB Solid State Drive, 180 GB Solid State Drive, 128 GB Solid State Drive, or 120 GB M.2 Solid State Drive (not available if Flash Cache is selected)
- Optional 32 GB 32GB MLC M.2 module Flash Cache module support for Intel Smart Response Technology. (Not available with SSD, SED).
- Built-in docking available for a desktop-like experience
- DisplayPort for high resolution support
- HD Audio with DTS Studio Sound with Conexant noise reduction software optimized for high fidelity audio during video conferencing and web-based training
- 4-cell (52 WHr) HP Long Life battery and optional 6-cell (60WHr) HP Long Life slice battery for extended battery life
- Battery life up to 29 hours with the primary + secondary battery
- Glass touchpad with chemically etched surface and pointstick
- Integrated Smart Card Reader and optional fingerprint reader for strong security authentication
- Flexible wireless connectivity options:
  - Optional integrated wireless mobile broadband
  - Integrated Intel Dual Band Wireless-AC 7260 802.11ac (2x2) WiFi and Bluetooth 4.0 Combo or Intel Dual Band Wireless-N 7260AN 802.11a/b/g/n (2x2) WiFi and Bluetooth 4.0 Combo
- Low Halogen, ENERGY STAR® qualified (with Microsoft OS) and EPEAT® Gold registered in the U.S. (with Microsoft OS). EPEAT status varies by country- please see [epeat.net](http://epeat.net).

**NOTE: See important legal disclosures for all listed specs in their respective features sections.**



### Features

#### PRODUCT NAME

HP EliteBook Folio 9480m Notebook PC

#### OPERATING SYSTEM

|                          |                                                                                          |
|--------------------------|------------------------------------------------------------------------------------------|
| <b>Preinstalled</b>      | Windows 8.1 Pro 64*                                                                      |
|                          | Windows 8.1 64*                                                                          |
|                          | Windows 7 Professional 64 (available through downgrade rights from Windows 8.1 Pro 64)** |
|                          | Ubuntu Linux                                                                             |
|                          | FreeDOS 2.0                                                                              |
| <b>Web-only Support:</b> | Windows 8.1 Enterprise 64*                                                               |
|                          | Windows 8 Chinese Market 64*                                                             |
|                          | Windows 8 Emerging Markets 64*                                                           |
|                          | Windows 8 Multi-Language 64*                                                             |
|                          | Windows 8 Professional 64*                                                               |
|                          | Windows 7 Professional 32*                                                               |
|                          | Windows 7 Professional 64*                                                               |
|                          | Windows 7 Enterprise 32*                                                                 |
|                          | Windows 7 Enterprise 64*                                                                 |

\* Not all features are available in all editions of Windows. Systems may require upgraded and/or separately purchased hardware, drivers and/or software to take full advantage of Windows functionality. See <http://www.microsoft.com> for details.

\*\* This system is preinstalled with Windows® 7 Pro software and also comes with a license and media for Windows 8.1 Pro software. You may only use one version of the Windows software at a time. Switching between versions will require you to uninstall one version and install the other version. You must back up all data (files, photos, etc.) before uninstalling and installing operating systems to avoid loss of your data.

#### PROCESSOR

Intel® Core™ i7-4650U with Intel HD Graphics 5000 (1.7 GHz, Up to 3.3 GHz with Intel Turbo Boost Technology, 4 MB cache, 2 cores)

Intel® Core™ i7-4600U with Intel HD Graphics 4400 (2.1 GHz, Up to 3.3 GHz with Intel Turbo Boost Technology, 4 MB cache, 2 cores)

Intel® Core™ i5-4310U with Intel HD Graphics 4400 (2 GHz, Up to 3 GHz with Intel Turbo Boost Technology, 3 MB cache, 2 cores)

Intel® Core™ i5-4210U with Intel HD Graphics 4400 (1.7 GHz, Up to 2.7 GHz with Intel Turbo Boost Technology, 3 MB cache, 2 cores)†

\* Multi-Core is designed to improve performance of certain software products. Not all customers or software applications will necessarily benefit from use of this technology. 64-bit computing on Intel® architecture requires a computer system with a processor, chipset, BIOS, operating system, device drivers, and applications enabled for Intel® 64 architecture.

Processors will not operate (including 32-bit operation) without an Intel® 64 architecture-enabled BIOS. Performance will vary depending on your hardware and software configurations. Intel's numbering is not a measurement of higher performance.

† Not available with vPro

#### CHIPSET

Chipset is integrated with processor



### Features

#### INTEL CORE i5 WITH vPro/CORE i7 WITH vPro TECHNOLOGY CAPABLE

Intel Core i5 with vPro and Core i7 with vPro technology is a selectable feature that is available on units configured with select processors, an Intel Centrino® Advanced-N or Ultimate-N WLAN module and a preinstalled Windows operating system. It provides advances in remote manageability, security, energy efficient performance, and wireless connectivity. Intel Active Management Technology 9.0 (iAMT) offers built-in manageability and proactive security for networked notebook PCs, even when they are powered off\* or when the operating system is inoperable. It can help identify threats before they reach the network, isolate infected systems, and update PCs regardless of their power state.

\*Requires a Windows operating system, network hardware and software, connection with a power source, and a direct (non-VPN) corporate network connection which is either cable or wireless LAN.

**NOTE:** Some functionality of Intel Core i5 with vPro/Core i7 with vPro technology, such as Intel Active Management technology and Intel Virtualization technology, requires additional third- party software in order to run. Availability of future "virtual appliances" applications for Intel Core i5 with vPro/Core i7 with vPro technology is dependent on third- party software providers. Compatibility with future "virtual appliances" is yet to be determined.

#### GRAPHICS

Integrated:

Intel HD Graphics 5000 (Intel® Core™ i7-4650U processor only)

Intel HD Graphics 4400

#### DISPLAY

##### Internal

14" diagonal HD\* anti-glare, Standard Viewing Angle, LED-backlit (1366 x 768)

14" diagonal HD+\* anti-glare, Standard Viewing Angle, LED-backlit (1600 x 900)

##### External

Up to 32-bit per pixel color depth

##### DisplayPort 1.2a

Supports resolutions up to 2560 x 1600, 30-bit color depth at 60 Hz, and full HD (1920 x 1080) monitors, 24-bit color depth at 120 Hz

##### VGA

Port supports resolutions up to 1920 x 1200 at 60 Hz, and lower resolutions at up to 100 Hz

\* HD content required to view HD images.

**NOTE:** Resolutions are dependent upon monitor capability, and resolution and color depth settings.

#### FLASH CACHE MODULE

Optional 32GB MLC M.2 module support for Intel Smart Response Technology. (Not available with with SSD, SED).

#### STORAGE AND DRIVES

##### Primary Storage Bay

##### Hard Drives

500GB 7200 rpm SMART IV SATA II

500 GB 7200 rpm SMART SATA II Self Encrypting Drive

##### HP 3D DriveGuard (Windows only)

The hard drive is mounted directly to the notebook frame, reducing the transmission of shock to the hard drive by parking the hard drive heads due to sudden impact and vibration..



### Features

#### **Solid State Drive**

SATA 6 Gb/s 128 GB Solid State

SATA 6 Gb/s 180 GB Solid State

SATA 6 Gb/s 240 GB Solid State

SATA 6 Gb/s 256 GB Solid State Self-Encrypting Drive

#### **M.2 Solid State Drive**

120 GB M.2 Solid State Drive

**NOTE:** For hard drives and SSD's, GB=1 billion bytes. TB=1 trillion bytes. Actual formatted capacity is less. Up to 30GB (for Windows 8.1) of system disk is reserved for system recovery software.

**NOTE:** The EliteBook Folio is available in standard thin and light configurations for customers who value the ultra-thin design but prefer options such as a standalone HDD or require a self-encrypting hard drive. These configurations will not meet Intel's definition of an Ultrabook.

### MEMORY

#### **Standard**

DDR3L PC3-12800 SDRAM (1600 MHz)

Two SODIMM slots supporting dual-channel memory

Standard memory up to 16384 MB (4 GB, and 8 GB SODIMMs)

#### **Maximum**

Upgradeable to 16384 MB with optional 8192 MB SODIMMs in slots 1 and 2

#### **Dual-channel**

Maximized dual-channel performance requires SODIMMs of the same size and speed in both memory slots.

**NOTE:** Due to the non-industry standard nature of some third-party memory modules, we recommend HP branded memory to ensure compatibility. If you mix memory speeds, the system will perform at the lower memory speed. Maximum memory capacities assume Windows 64-bit operating systems. With Windows 32-bit operating systems, memory above 3 GB may not all be available due to system resource requirements.

### NETWORKING/COMMUNICATIONS

#### **Wireless**

Support for a broad range of secure, integrated wireless LAN and wireless WAN options featuring support for the latest industry standards. Broadband Wireless (WWAN) requires a Windows operating system and is available in select countries. Wireless LAN and integrated Bluetooth are also available (both are factory configurable only) and can be combined with any of the supported wireless WAN options.

#### **Broadband Wireless (WWAN)**

HP hs3110 HSPA+ Mobile Broadband\*

HP lt4211 LTE/EV-DO/HSPA+ Qualcomm® Gobi™ 4G Mobile Broadband\*

HP lt4112 LTE/HSPA+ Qualcomm® Gobi™ 4G Mobile Broadband\*

#### **Integrated wireless LAN options**

Intel Dual Band Wireless-AC 7260 802.11ac (2x2) WiFi and Bluetooth 4.0 Combo\*\*

Intel Dual Band Wireless-N 7260AN 802.11a/b/g/n (2x2) WiFi and Bluetooth 4.0 Combo\*\*

#### **Communications**

Intel I218-LM GbE (10/100/1000 NIC)\*\*\*

\* WWAN is an optional feature, requires factory configuration and requires separately purchased service contract. Check with service provider for coverage and availability in your area. Connection speeds will vary due to location, environment, network conditions, and other factors. 4G LTE not available in all regions.

\*\* Wireless is an optional feature. Wireless access point and internet service required and sold separately. Availability of public wireless access points limited.



### Features

\*\*\* The term "10/100/1000" or "Gigabit" Ethernet indicates compatibility with IEEE standard 802.3ab for Gigabit Ethernet, and does not connote actual operating speed of 1 Gb/s. For high-speed transmission, connection to a Gigabit Ethernet server and network infrastructure is required.

### AUDIO/MULTIMEDIA

#### Audio

HD Audio with DTS Studio Sound™  
Integrated stereo speakers  
Integrated dual-microphone array  
Button for volume mute; function keys for volume up and down  
Headphone/Microphone combo port

#### Webcam

Optional 720p HD webcam

- HD format (widescreen)
- Supports videoconferencing and still image capture
- High quality fixed focus lens
- Video capture at various resolutions up to 1280x720 resolution (720p) and up to 30fps
- M-JPEG compression supports higher frame rates for video capture and videoconferencing
- Improved low light sensitivity
- Improved dynamic range

### KEYBOARDS/POINTING DEVICES/BUTTONS & FUNCTION KEYS

#### Keyboard

The HP spill-resistant, backlit keyboard is designed using a thin layer of Mylar film under the keyboard. This minimizes the risk of damage to sensitive components underneath. The 101/102-key compatible keyboard features a full-pitch key layout with desktop keyboard features, such as the isolated inverted-T cursor control keys, editing keys, both left and right control and alt keys, 12 function keys, and 19.05 x 19.05 mm key pitch (center-to-center spacing). U.S. and International key layouts are available. Other features include hot keys for instant access to power conservation and brightness.

#### Pointing Devices

Glass Touchpad (with chemically etched surface) with on/off button, two finger scrolling, pinch zoom, rotating and three-finger flick gestures, two pick buttons

Pointstick with two additional pointstick buttons (for a total of four)

#### Buttons and Function Keys

Discrete buttons provide easy access to the following features: wireless on/off, and volume mute. Function keys provide control of the following features: sleep mode, external display switching, volume down, volume up, microphone mute, backlit keyboard, and display brightness.

### SOFTWARE AND SECURITY

#### Preinstalled Software with Windows Operating System

Foxit Phantom PDF Express  
HP Support Assistant<sup>1</sup>  
HP Software Setup  
HP Softpaq Download Manager  
HP Setup  
HP ePrint Driver<sup>2</sup>  
HP 3D Driveguard (for hard drive only)<sup>3</sup>



### Features

Intel WiDi Software<sup>4</sup>  
CyberLink Power2Go  
CyberLink PowerDVD  
Absolute Persistence<sup>5</sup>  
HP File Sanitizer<sup>6</sup> and HP Secure Erase  
HP Client Security<sup>7</sup>  
Microsoft Security Essentials<sup>8</sup>

<sup>1</sup>HP Support Assistant: internet access required.

<sup>2</sup>ePrint requires an Internet connection to HP web-enabled printer. HP ePrint account registration required. For a list of eligible printers, supported documents and image types, and for complete details, see [www.hp.com/eprint](http://www.hp.com/eprint)

<sup>3</sup>HP 3D Drive Guard requires Windows.

<sup>4</sup>WiDi: Intel® Wireless Display requires a separate Wireless Display receiver with a USB port and an HDTV or monitor with HDMI input.

<sup>5</sup>BIOS Absolute Persistence module is shipped turned off, and will be activated when customers purchase and activate a subscription. Service may be limited. Check with Absolute for availability outside the U.S. The optional subscription service of Absolute Recovery Guarantee is a limited warranty. Certain conditions apply. For full details visit:

<http://www.absolute.com/company/legal/agreements/computrace-agreement>. If Data Delete is utilized, the Recovery Guarantee payment is null and void. In order to use the Data Delete service, customers must first sign a Pre-Authorization Agreement and either create a PIN or purchase one or more RSA SecurID tokens from Absolute Software.

<sup>6</sup>File Sanitizer is for the use cases outlined in the DOD 5220.22-M Supplement. Does not support Solid State Drives (SSDs). Initial setup required. Web history deleted only in Internet Explorer and Firefox browsers and must be user enabled.

<sup>7</sup>HP Client Security requires Windows.

<sup>8</sup>Microsoft Security Essentials on Windows 7 only. Internet access required.

**NOTE:** HP Recovery Manager enables fast recovery of the factory preinstalled image if the system becomes corrupted or if important system files are accidentally deleted. Up to 16GB (for Windows 7) of system and up to 30 GB (for Windows 8) disk is reserved for system recovery software. Support in Windows Operating System only.

### Security

#### Standard

Absolute Data Protect (Win 8.1 only)  
Absolute Persistence Module  
Device Access Manager with Just In Time Authentication  
HP File Sanitizer  
HP Client Security/HP Secure Erase  
HP SpareKey  
Microsoft Security Essentials  
Microsoft Defender (Win 8.1 only)  
Security lock slot  
Common Criteria Certified TPM 1.2 Embedded Security Chip  
Integrated smart card reader (active);  
HP Drive Encryption  
HP SureStart

#### Optional

HP Fingerprint Reader



### Features

**NOTE:** Computrace agent is shipped turned off, and must be activated by customers when they purchase a subscription. Subscriptions can be purchased for terms ranging from one to five years. Service is limited, check with Absolute for availability outside the U.S.

### POWER

#### Power Supply

Models with integrated graphics with dual-core processor:

45 W Smart AC adapter

45 W Smart AC adapter 2-prong (Japan only)

65W Smart EM AC Adapter

Power cord included is 1.8m (+/- 0.1m) or 1.0 m (+/- 0.1m). In Japan, only the only 1.0 m power cord (2-prong) is available with 45W 2-prong adapter )

#### Primary Battery

HP 4-cell Lithium-Ion Long Life Battery (52 WHr)

#### Slice Battery (Optional)

HP 6-cell Lithium-Ion Long Life Battery (60 WHr)

#### Battery Life

4-cell (52 WHr) Primary

Up 13 hours 15 minutes\*

4-cell (52 WHr) Primary and 6-cell (60 WHr) Slice

Up 29 hours \*\*

\*Windows 7 battery life will vary depending on various factors including product model, configuration, loaded applications, features, use, wireless functionality, and power management settings. The maximum capacity of the battery will naturally decrease with time and usage. See [www.bapco.com](http://www.bapco.com) for additional details.

\*\*Requires separately purchased slice battery. Windows 7 battery life will vary depending on various factors including product model, configuration, loaded applications, features, use, wireless functionality, and power management settings. The maximum capacity of the battery will naturally decrease with time and usage. See [www.bapco.com](http://www.bapco.com) for additional details

#### System Standby Time

Deep sleep enabled: with main battery – TBD weeks TBD days

#### Power Conservation

Hibernation

Standby

ACPI compliance

### ENVIRONMENTAL

ENERGY STAR qualified (with Microsoft OS)

Low Halogen (does not cover adapters and power cords)

IT ECO Declaration

EPEAT® registered where applicable. EPEAT registration varies by country. See [www.epeat.net](http://www.epeat.net) for registration status by country.

**NOTE:** This product has received or is in the process of being certified to the following approvals and may be labeled with one or more of these marks.



### Features

## WEIGHTS & DIMENSIONS

### Weight

Lightest possible configuration (HD Panel, 4-cell (52Whr) Battery, mSATA 256GB SSD, 2GB RAM, no FPR, no camera, no WWAN, Intel Taylor Peak WLAN).

Lightest Weight Configurations (across panel, battery and ODD options, if applicable)

|                  | <b>4-cell (52Whr)</b> | <b>6-cell (60Whr)</b> |
|------------------|-----------------------|-----------------------|
| <b>Non-Touch</b> | 3.56lb/1.61kg         | 4.54lb/2.06kg         |

### Dimensions (w x d x h)

13.3 x 9.09 x 0.75 in

33.8 x 23.1 x 1.895 cm

**NOTE:** Weight varies by configuration and components. Weight includes No FPR, 1 SODIMM, M.2 120GB SSD, no camera, no WWAN, Intel WLAN. Weight varies by configuration and components.

## PORTS/SLOTS

### Ports

VGA – One

DisplayPort 1.2a with Multi-Stream Transport (MST) support – One (v1.2a)

Headphone/Microphone combo port – One

Power Connector – One

Secondary Battery Connector – One

Docking Connector – One

RJ-45 (Ethernet) – One

USB 3.0 – Two

USB 3.0 charging port – One

### Digital Media Slots

1 SD slot (supported media include: SD, SDHC, SDXC)

## SERVICE AND SUPPORT

HP Services offers limited 3-year and 1 year warranty options depending on country;

1-year limited warranty on primary battery; 3-year limited warranty on HP Long Life Battery (only available with 3-year platform warranty). On-site service is also available. Optional HP Care Pack Services are extended service contracts that go beyond the standard warranties. To choose the right level of service for your HP product, use the HP Care Pack Services Lookup Tool at: <http://www.hp.com/go/lookuptool>. Additional HP Care Pack Services information by product is available at: [www.hp.com/go/cpc](http://www.hp.com/go/cpc).

**NOTE:** Certain restrictions and exclusions apply. Consult the HP Customer Support Center for details.  
<http://h20000.www2.hp.com/bizsupport/TechSupport/ProductRoot.jsp>

**NOTE:** Battery, hard drive assembly, memory modules wireless modules, wireless WAN modules, and keyboard are part of HP Self Repair Program allowing customers the fastest service under either warranty or service contract



### *Features*



### Technical Specifications

#### SYSTEM UNIT

|                                                  |                                         |                                                            |
|--------------------------------------------------|-----------------------------------------|------------------------------------------------------------|
| <b>Stand-Alone Power Requirements</b> (AC Power) | <b>Nominal Operating Voltage</b>        | 19.5 V                                                     |
|                                                  | <b>Average Operating Power</b>          | 5.23 W                                                     |
|                                                  | <b>Max Operating Power</b>              | < 45 W                                                     |
| <b>Temperature</b>                               | <b>Operating</b>                        | 32° to 95° F (0° to 35° C) (not writing optical)           |
|                                                  | <b>Non-operating</b>                    | -4° to 140° F (-20° to 60° C)                              |
| <b>Relative Humidity</b>                         | <b>Operating</b>                        | 10% to 90%, non-condensing                                 |
|                                                  | <b>Non-operating</b>                    | 5% to 95%, 101.6° F (38.7° C) maximum wet bulb temperature |
| <b>Shock</b>                                     | <b>Operating</b>                        | 40 G, 2 ms, half-sine                                      |
|                                                  | <b>Non-operating</b>                    | 200 G, 2 ms, half-sine                                     |
| <b>Random Vibration</b>                          | <b>Operating</b>                        | 0.75 grms                                                  |
|                                                  | <b>Non-operating</b>                    | 1.50 grms                                                  |
| <b>Altitude</b> (unpressurized)                  | <b>Operating</b>                        | -50 to 10,000 ft (-15.24 to 3,048 m)                       |
|                                                  | <b>Non-operating</b>                    | -50 to 40,000 ft (-15.24 to 12,192 m)                      |
| <b>Planned Industry Standard Certifications</b>  | <b>UL</b>                               | Yes                                                        |
|                                                  | <b>CSA</b>                              | Yes                                                        |
|                                                  | <b>FCC Compliance</b>                   | Yes                                                        |
|                                                  | <b>ENERGY STAR®</b>                     | Select models (Microsoft OS)*                              |
|                                                  | <b>EPEAT</b>                            | Registered Gold in United States**                         |
|                                                  | <b>ICES</b>                             | Yes                                                        |
|                                                  | <b>Australia / NZ A-Tick Compliance</b> | Yes                                                        |
|                                                  | <b>CCC</b>                              | Yes                                                        |
|                                                  | <b>Japan VCCI Compliance</b>            | Yes                                                        |
|                                                  | <b>KC</b>                               | Yes                                                        |
|                                                  | <b>BSMI</b>                             | Yes                                                        |
|                                                  | <b>CE Marking Compliance</b>            | Yes                                                        |
|                                                  | <b>BNCI or BELUS</b>                    | Yes                                                        |
|                                                  | <b>CIT</b>                              | Yes                                                        |
|                                                  | <b>GOST</b>                             | Yes                                                        |
|                                                  | <b>Saudi Arabian Compliance (ICCP)</b>  | Yes                                                        |
|                                                  | <b>SABS</b>                             | Yes                                                        |
|                                                  | <b>UKRSERTCOMPUTER</b>                  | Yes                                                        |

\* Configurations of the HP EliteBook Folio 9480m that are ENERGY STAR qualified are identified as HP EliteBook Folio ENERGY STAR on HP websites and on [www.energystar.gov](http://www.energystar.gov).

\*\* EPEAT registration varies by country. See [www.epeat.net](http://www.epeat.net) for registration status by country. EPEAT status listed above applies to U.S.

For accessibility information on HP products, please visit: <http://www.hp.com/accessibility>.

#### DISPLAYS

|                                                 |                           |                                  |
|-------------------------------------------------|---------------------------|----------------------------------|
| <b>14.0-inch LED HD (1366 x 768) anti-glare</b> | <b>Dimensions (W x H)</b> | 12.74 x 7.56 in (32.4 x 19.2 cm) |
|                                                 | <b>Diagonal Size</b>      | 14.0 in (35.6cm)                 |
|                                                 | <b>Surface Treatment</b>  | Anti-glare                       |
|                                                 | <b>Contrast Ratio</b>     | 400:1 (typical)                  |
|                                                 | <b>Refresh Rate</b>       | 60 Hz                            |



### Technical Specifications

|                                                  |                           |                                                                                                                                         |            |
|--------------------------------------------------|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|------------|
| <b>14.0-inch LED HD+ (1600 x 900) anti-glare</b> | <b>Brightness</b>         | 200 nit (typical)                                                                                                                       |            |
|                                                  | <b>Pixel Resolution</b>   | <b>Pitch</b>                                                                                                                            | 0.227 mm   |
|                                                  |                           | <b>Format</b>                                                                                                                           | 1366 x 768 |
|                                                  |                           | <b>Configuration</b>                                                                                                                    | RGB Stripe |
|                                                  | <b>Backlight</b>          | LED                                                                                                                                     |            |
|                                                  | <b>PPI</b>                | 112 ppi                                                                                                                                 |            |
|                                                  | <b>Viewing Angle</b>      | ±30° Horizontal, ±10° Vertical (minimum)<br>30/30/20/10 (Left/Right/Down/Up) (minimum) or<br>45/45/35/25 (Left/Right/Down/Up) (typical) |            |
|                                                  |                           |                                                                                                                                         |            |
|                                                  |                           |                                                                                                                                         |            |
|                                                  |                           |                                                                                                                                         |            |
|                                                  | <b>Dimensions (W x H)</b> | 12.64 x 8.11 in (32.1 x 20.6 cm)                                                                                                        |            |
|                                                  | <b>Diagonal Size</b>      | 14.0 in (35.6cm)                                                                                                                        |            |
|                                                  | <b>Surface Treatment</b>  | Anti-glare                                                                                                                              |            |
|                                                  | <b>Contrast Ratio</b>     | 300                                                                                                                                     |            |
|                                                  | <b>Refresh Rate</b>       | 60 Hz                                                                                                                                   |            |
|                                                  | <b>Brightness</b>         | 250 nit (typical)                                                                                                                       |            |
|                                                  | <b>Pixel Resolution</b>   | <b>Pitch</b>                                                                                                                            | 0.1935 mm  |
|                                                  |                           | <b>Format</b>                                                                                                                           | 1600 x 900 |
|                                                  |                           | <b>Configuration</b>                                                                                                                    | RGB Stripe |
|                                                  | <b>Backlight</b>          | LED                                                                                                                                     |            |
|                                                  | <b>PPI</b>                | 131 ppi                                                                                                                                 |            |
|                                                  | <b>Viewing Angle</b>      | ±30° Horizontal, ±10° Vertical (minimum)<br>30/30/20/10 (Left/Right/Down/Up) (minimum) or<br>45/45/35/25 (Left/Right/Down/Up) (typical) |            |

### STORAGE AND DRIVES

#### Internal Storage

**NOTE:** The EliteBook Folio is available in standard thin and light configurations for customers who value the ultra-thin design but prefer options such as a standalone HDD or require a self-encrypting hard drive. These configurations will not meet Intel's definition of an Ultrabook.

|                                        |                      |                                |                                       |
|----------------------------------------|----------------------|--------------------------------|---------------------------------------|
| <b>500 GB 7200 rpm SATA Hard Drive</b> | <b>Drive Weight</b>  | 0.21 lbs (95g)                 |                                       |
|                                        | <b>Capacity</b>      | 500 GB                         |                                       |
|                                        | <b>Height</b>        | 0.276 in (7 mm)                |                                       |
|                                        | <b>Width</b>         | 2.75 in (70 mm)                |                                       |
|                                        | <b>Interface</b>     | ATA-8, SATA 2.6, 3.0 Gb/s, NCQ |                                       |
|                                        | <b>Transfer Rate</b> | <b>Synchronous</b>             | 300 MB/s (Drive Capability) (maximum) |
|                                        | <b>S.M.A.R.T</b>     | <b>IV</b>                      |                                       |
|                                        |                      | <b>Single Track</b>            | 1.5 ms                                |



### Technical Specifications

|                                                                 |                                                         |                                                     |                                 |
|-----------------------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------|---------------------------------|
|                                                                 | <b>Seek Time</b><br>(typical reads, including settling) | <b>Average</b>                                      | 11 ms                           |
|                                                                 |                                                         | <b>Maximum</b>                                      | 22 ms                           |
|                                                                 | <b>Rotational Speed</b>                                 | 7200 rpm                                            |                                 |
|                                                                 | <b>Logical Blocks</b>                                   | 976,773,168                                         |                                 |
|                                                                 | <b>Operating Temperature</b>                            | 32° to 140° F (0° to 60° C) [case temp]             |                                 |
| <b>500 GB 7200 rpm SMART SATA II Self Encrypting Hard Drive</b> | <b>Features</b>                                         | ATA Security                                        |                                 |
|                                                                 | <b>Drive Weight</b>                                     | 0.21 lbs (95g)                                      |                                 |
|                                                                 | <b>Capacity</b>                                         | 500 GB                                              |                                 |
|                                                                 | <b>Height</b>                                           | 0.276 in (7 mm)                                     |                                 |
|                                                                 | <b>Width</b>                                            | 2.50 in (63.5 mm)                                   |                                 |
|                                                                 | <b>Interface</b>                                        | ATA-8, SATA 2.6, 3.0 Gb/s                           |                                 |
|                                                                 | <b>Transfer Rate</b>                                    | <b>Synchronous (maximum)</b>                        | 300 MB/s (Drive Capability)     |
|                                                                 | <b>Seek Time</b><br>(typical reads, including settling) | <b>Single Track</b>                                 | 1 ms                            |
|                                                                 |                                                         | <b>Average</b>                                      | 12 ms                           |
|                                                                 |                                                         | <b>Maximum</b>                                      | 20 ms                           |
| <b>SATA 6 Gb/s 256 GB, 2.5-inch SATA SED Solid State Drive</b>  | <b>Cache</b>                                            | 16 MB                                               |                                 |
|                                                                 | <b>Rotational Speed</b>                                 | 7200 rpm                                            |                                 |
|                                                                 | <b>Logical Blocks</b>                                   | 976,773,168                                         |                                 |
|                                                                 | <b>Operating Temperature</b>                            | 32° to 140° F (0° to 60° C) [case temp]             |                                 |
|                                                                 | <b>Features</b>                                         | ATA Security                                        |                                 |
|                                                                 | <b>Drive Weight</b>                                     | 73 Grams                                            |                                 |
|                                                                 | <b>Capacity</b>                                         | 256 GB                                              |                                 |
|                                                                 | <b>Height</b>                                           | 0.276 in (7 mm)                                     |                                 |
|                                                                 | <b>Width</b>                                            | 2.76 in (70 mm)                                     |                                 |
|                                                                 | <b>Interface</b>                                        | SATA Gen 3 (6 Gb/s)                                 |                                 |
| <b>SATA 6 Gb/s 240 GB, 2.5-inch Solid State Drive</b>           | <b>Performance</b>                                      | <b>Maximum Sequential Read</b>                      | <b>Maximum Sequential Write</b> |
|                                                                 |                                                         | Up to 460 MB/s                                      | Up to 260 MB/s                  |
|                                                                 | <b>Logical Blocks</b>                                   | 500,118,192                                         |                                 |
|                                                                 | <b>Operating Temperature</b>                            | 32° to 158°F (0° to 70°C) [case temp]               |                                 |
|                                                                 | <b>Features</b>                                         | ATA Security; ATA-8 compliant; SATA 3.0; DIPM; TRIM |                                 |
| <b>SATA 6 Gb/s 240 GB, 2.5-inch Solid State Drive</b>           | <b>Drive Weight</b>                                     | 78 Grams                                            |                                 |
|                                                                 | <b>Capacity</b>                                         | 240 GB                                              |                                 |
|                                                                 | <b>Height</b>                                           | 0.276 in (7 mm)                                     |                                 |
|                                                                 | <b>Width</b>                                            | 2.76 in (70 mm)                                     |                                 |
|                                                                 | <b>Interface</b>                                        | SATA 3 (6 Gb/s)                                     |                                 |



### Technical Specifications

|                                                       |                              |                                           |                                 |
|-------------------------------------------------------|------------------------------|-------------------------------------------|---------------------------------|
|                                                       | <b>Performance</b>           | <b>Maximum Sequential Read</b>            | <b>Maximum Sequential Write</b> |
|                                                       |                              | 550 MB/s                                  | 520 MB/s                        |
|                                                       | <b>Logical Blocks</b>        | 468,862,128                               |                                 |
|                                                       | <b>Operating Temperature</b> | 32° to 158°F (0° to 70°C) [case temp]     |                                 |
|                                                       | <b>Features</b>              | ATA Security; ATA-8, SATA 3.0; DIPM; TRIM |                                 |
| <b>SATA 6 Gb/s 180 GB, 2.5-inch Solid State Drive</b> | <b>Drive Weight</b>          | 78 Grams                                  |                                 |
|                                                       | <b>Capacity</b>              | 180 GB                                    |                                 |
|                                                       | <b>Height</b>                | 0.276 in (7 mm)                           |                                 |
|                                                       | <b>Width</b>                 | 2.76 in (70 mm)                           |                                 |
|                                                       | <b>Interface</b>             | SATA 3 (6 Gb/s)                           |                                 |
|                                                       | <b>Performance</b>           | <b>Maximum Sequential Read</b>            | <b>Maximum Sequential Write</b> |
|                                                       |                              | 550 MB/s                                  | 520 MB/s                        |
|                                                       | <b>Logical Blocks</b>        | 351,651,888                               |                                 |
|                                                       | <b>Operating Temperature</b> | 32° to 158°F (0° to 70°C) [case temp]     |                                 |
|                                                       | <b>Features</b>              | ATA Security; ATA-8, SATA 3.0; DIPM; TRIM |                                 |
| <b>SATA 6 Gb/s 128 GB, 2.5-inch Solid State Drive</b> | <b>Drive Weight</b>          | 73 Grams                                  |                                 |
|                                                       | <b>Capacity</b>              | 128 GB                                    |                                 |
|                                                       | <b>Height</b>                | 0.276 in (7 mm)                           |                                 |
|                                                       | <b>Width</b>                 | 2.76 in (70 mm)                           |                                 |
|                                                       | <b>Interface</b>             | SATA 3 (6 Gb/s)                           |                                 |
|                                                       | <b>Performance</b>           | <b>Maximum Sequential Read</b>            | <b>Maximum Sequential Write</b> |
|                                                       |                              | 415 MB/s                                  | 175 MB/s                        |
|                                                       | <b>Logical Blocks</b>        | 250,069,680                               |                                 |
|                                                       | <b>Operating Temperature</b> | 32° to 158°F (0° to 70°C) [case temp]     |                                 |
|                                                       | <b>Features</b>              | ATA Security; ATA-8; SATA 3.0 DIPM; TRIM  |                                 |
| <b>120 GB* M.2 Solid State Drive</b>                  | <b>Drive Weight</b>          | < 10 Grams                                |                                 |
|                                                       | <b>Capacity</b>              | 120 GB                                    |                                 |
|                                                       | <b>Height</b>                | 0.276 in (22 mm)                          |                                 |
|                                                       | <b>Width</b>                 | 2.76 in (42 mm)                           |                                 |
|                                                       | <b>Interface</b>             | SATA 3 (6 Gb/s)                           |                                 |
|                                                       | <b>Performance</b>           | <b>Maximum Sequential Read</b>            | <b>Maximum Sequential Write</b> |
|                                                       |                              | 540 MB/s                                  | 480 MB/s                        |
|                                                       | <b>Logical Blocks</b>        | 234,441,648                               |                                 |
|                                                       | <b>Operating Temperature</b> | 32° to 158°F (0° to 70°C) [case temp]     |                                 |
|                                                       | <b>Features</b>              | ATA Security; ATA-8; SATA 3.0; TRIM       |                                 |



### Technical Specifications

\* For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 30GB (for Windows 8) of system disk is reserved for system recovery software.

### SECURITY

|                                            |                                   |                                                                                                                      |
|--------------------------------------------|-----------------------------------|----------------------------------------------------------------------------------------------------------------------|
| <b>HP Fingerprint Sensor</b><br>(optional) | <b>Mobile Voltage Operation</b>   | 3.0V-3.6V Single Supply                                                                                              |
|                                            | <b>Operating Temperature</b>      | 32° – 158°F (0° – 70°C)                                                                                              |
|                                            | <b>Current Consumption @ 3.3V</b> | Less than 70 mA peak imaging and scrolling<br>Less than 25 mA hardware finger detection<br>Advanced Power Management |
|                                            | <b>High-Rate Image Capture</b>    | Up to 240 image frames /sec                                                                                          |
|                                            | <b>ESD Resistance</b>             | IEC 61000-4-2 Level 4 (±15KV)                                                                                        |
|                                            | <b>Detection Matrix</b>           | 192 x 16 Pixels<br>9.7 mm x 0.81 mm<br>500 ppi High-Resolution Images                                                |

### NETWORKING/COMMUNICATIONS

|                                                |                              |                                                                                                                           |
|------------------------------------------------|------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| <b>Intel I218LM Gigabit Network Connection</b> | <b>Connector</b>             | RJ-45                                                                                                                     |
|                                                | <b>System Interface</b>      | Integrated on PCA                                                                                                         |
|                                                | <b>Controller</b>            | Intel I218LM GbE platform LAN connect networking controller                                                               |
|                                                | <b>Memory</b>                | 24 KB FIFO packet buffer memory                                                                                           |
|                                                | <b>Data rates supported</b>  | 10/100/1000 Mbps                                                                                                          |
|                                                | <b>IEEE Compliance</b>       | 802.1P                                                                                                                    |
|                                                |                              | 802.1Q                                                                                                                    |
|                                                |                              | 802.2                                                                                                                     |
|                                                |                              | 802.3                                                                                                                     |
|                                                |                              | 802.3ab                                                                                                                   |
|                                                |                              | 802.3az                                                                                                                   |
|                                                |                              | 802.3u                                                                                                                    |
|                                                | <b>Bus architecture</b>      | PCI Express and SMBus                                                                                                     |
|                                                | <b>Data transfer mode</b>    | PCIe-based interface for active state operation (S0 state) and SMBus for host and management traffic (Sx low power state) |
|                                                | <b>Power requirement</b>     | Requires 3.3V and 0.9V or just 3.3V with integrated regulators<br>Power consumption 0.733 Watts                           |
|                                                | <b>Boot ROM support</b>      | Yes                                                                                                                       |
|                                                | <b>Network transfer mode</b> | Full-duplex                                                                                                               |
|                                                |                              | Half-duplex (not supported for the 1000BASE-T transceiver)                                                                |
|                                                | <b>Network transfer rate</b> | 10BASE-T (half-duplex) 10 Mbps                                                                                            |
|                                                |                              | 10BASE-T (full-duplex) 20 Mbps                                                                                            |
|                                                |                              | 100BASE-TX (half-duplex) 100 Mbps                                                                                         |
|                                                |                              | 100BASE-TX (full-duplex) 200 Mbps                                                                                         |
|                                                |                              | 1000BASE-T (full-duplex) 2000 Mbps                                                                                        |
|                                                | <b>Environmental</b>         | Operating Temperature: 0° to 85° C                                                                                        |
|                                                |                              | Operating Humidity: 60% RH                                                                                                |



### Technical Specifications

|                                                |                                                   |                                                                                                                                                                                                                                                             |
|------------------------------------------------|---------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>HP hs3110HSPA+ Mobile Broadband* Module</b> | <b>Management</b>                                 | WOL, auto MDI crossover, PXE, Multi-port teaming, RSS, Advanced cable diagnostic.                                                                                                                                                                           |
|                                                | <b>Alerting</b>                                   | ASF 2.0 support; iAMT 9.0 support                                                                                                                                                                                                                           |
|                                                | <b>Technology/Operating bands</b>                 | Modes: WCDMA/HSDPA/HSUPA/HSPA+/AWS/GSM/EDGE/GPRS<br>Penta-band WCDMA/HSDPA/HSUPA/HSPA+/AWS:<br>850/900/1900/2100/AWS MHz<br>GSM/GPRS/EDGE: 850/900/1800/1900 MHz                                                                                            |
|                                                | <b>Wireless protocol standards</b>                | GSM/GPRS/EDGE: Class B, Multi-slot class 33, coding schemes CS1 - CS4 and MSC1 - MSC9.<br>UMTS/WCDMA: Release 99 and Release 7<br>Advanced Receiver Type 3i                                                                                                 |
|                                                | <b>GPS</b>                                        | GPS Standalone, A-GPS: L1 (Internet- and Network assisted)                                                                                                                                                                                                  |
|                                                | <b>Wireless parametric standards</b>              | Complies with 3GPP specifications                                                                                                                                                                                                                           |
|                                                | <b>Maximum data rates</b>                         | GPRS/EDGE: Multi-slot Class 33, Class B<br>WCDMA PS: UL (384 kbps) / DL (384 kbps)<br>UL/DL HSPA: UL (5.76 Mbps)/ DL (7.2 Mbps)<br>UL/DL HSPA+: UL (5.76 Mbps)/ DL (21Mbps)                                                                                 |
|                                                | <b>Maximum output power</b>                       | WCDMA/HSPA/HSPA+ 2100/1900/900/850/AWS MHz:<br>+24dBm (Power Class 3)<br>GPRS 1900/1800 MHz: +30dBm (Power Class 1)<br>GPRS 900/850 MHz: +33dBm (Power Class 4)<br>EDGE 1900/1800 MHz: +26dBm (Power Class E2)<br>EDGE 900/850 MHz: +27dBm (Power Class E2) |
|                                                | <b>Maximum power consumption</b>                  | 2500mA (peak); 600mA (average)                                                                                                                                                                                                                              |
|                                                | <b>Power consumption, sleep mode</b>              | 3.6 mA                                                                                                                                                                                                                                                      |
|                                                | <b>Power management</b>                           | USB selective suspend, Connected Standby<br>Integrated notebook wireless button                                                                                                                                                                             |
|                                                | <b>Antenna type</b>                               | Dual high efficiency 5 band antennae with spatial diversity, mounted in the display enclosure                                                                                                                                                               |
|                                                | <b>Form Factor</b>                                | M.2 Socket 2, USB 2.0 interface high speed                                                                                                                                                                                                                  |
|                                                | <b>Weight</b>                                     | <6 g                                                                                                                                                                                                                                                        |
|                                                | <b>Dimensions</b><br>(Length x Width x Thickness) | 2.01 x 1.18 x 0.18 in (42 x 30 x 2.3 mm)                                                                                                                                                                                                                    |
|                                                | <b>SIM card supply voltage</b>                    | 1.8 V/3.0 V UICC (SIM/UICC/USIM)                                                                                                                                                                                                                            |
|                                                | <b>Voltage, Operating</b>                         | 3.135V~4.4V (3.3 V recommended)                                                                                                                                                                                                                             |
|                                                | <b>Temperature, operating</b>                     | 14° to 131° F (-10° to 55° C) (Normal operation)<br>-4° to 158° F (-20° to 70° C) (Extended operation)                                                                                                                                                      |
|                                                | <b>Temperature, storage</b>                       | -40° to 185° F (-40° to 85° C)                                                                                                                                                                                                                              |
|                                                | <b>Humidity</b>                                   | 5% to 95%                                                                                                                                                                                                                                                   |
|                                                | <b>Configuration utilities</b>                    | HP Connection Manager                                                                                                                                                                                                                                       |
|                                                | <b>LED activity</b>                               | LED Off - Radio Off; Solid LED On - Radio On                                                                                                                                                                                                                |



### Technical Specifications

\*Mobile Broadband is an optional feature and requires factory configuration. Use requires separately purchased service contract. Check with service provider for coverage and availability in your area. Connection speeds will vary due to location, environment, network conditions, and other factors. 4G LTE not available on all products, and in all regions.

#### HP It4112 LTE/HSPA+ Gobi™ 4G Module\*

#### Technology/Operating bands

LTE FDD all bands with diversity: 2100 MHz (Band I), 1900 MHz (Band II), 1800 MHz (Band III), 850 MHz (Band V), 2600 MHz (Band VII), 900 MHz (Band VIII), 800 MHz (Band XX, DD800)  
WCDMA/HSDPA/HSUPA/HSPA+ all bands with diversity: 2100 MHz (Band I), 1900 MHz (Band II), 800 MHz (Band V), 900 MHz (Band VIII)  
GSM/GPRS/EDGE: 1900 MHz (Band II), 1800 MHz (Band III), 850 MHz (Band V), 900 MHz (Band VIII)

#### Wireless protocol standards

3GPP Release 8 LTE Specification  
WCDMA R99, 3GPP Release 5, 6 and 7 UMTS Specification

#### Wireless parametric standards

Complies with 3GPP specifications Release 8 for LTE

#### Maximum data rates

LTE (Category 3): 100 Mbps (Download), 50Mbps (Upload)  
DC-HSPA+: 42 Mbps (Download), 5.76 Mbps (Upload)  
HSPA+: 21.6 Mbps (Download), 5.76 Mbps (Upload)  
EDGE: 236.8 kbps (Download), 236.8 kbps (Upload)  
GPRS: 85.6 kbps(Download), 85.6 kbps (Upload)

#### GPS

Standalone

#### GPS bands

1575.42 MHz ( $\pm 1.023$  MHz), GLONASS 1596-1607MHz

#### Maximum output power

LTE: +23 dBm (+/- 2 dBm)  
WCDMA: +23.5 dBm (+/- 1 dBm)  
GPRS Band II, III: +29.5 dBm (+/- 1 dBm)  
GPRS Band V, VIII: +32.5 dBm (+/- 1 dBm)  
EGPRS Band II, III: +26.5 dBm (+/-1.5 dBm)  
EGPRS Band V, VIII: +27.5 dBm (+/-1.5 dBm)

#### Maximum power consumption

LTE: 1,200 mA (peak); <900 mA (average)  
WCDMA: 1,100 mA (peak); <800 mA (average)  
EGPRS: 2,800 mA (peak); <700 mA (average)

#### Power consumption, sleep mode

3 mA

#### Power management

USB selective suspend, Integrated notebook wireless button

#### Antenna type

Dual high efficiency multi-band antennae with spatial diversity

#### Form Factor

M.2, USB 2.0 interface

#### Weight

6 g

#### Dimensions

42 mm × 30 mm × 2.3 mm

(Length x Width x  
Thickness)

#### Voltage, Operating

3.135 V to 4.4 V (3.3 V +1.1V/-0.165V)

#### Temperature, operating (from TIA/EIA/IS-98-D)

14° to 131° F (–10° to 55° C)

#### Temperature, non- operating, 96 hours (from MIL-STD 202 Method 108)

–40° to 185° F (–40° to 85° C)



### Technical Specifications

**Humidity, non-operating** 95% relative humidity for 48 hours @ 185° F (85° C) (non-condensing)

**LED activity** LED Off - Radio Off; Solid LED On - Radio On

\*\* Mobile Broadband is an optional feature and requires factory configuration. Use requires separately purchased service contract. Check with service provider for coverage and availability in your area. Connection speeds will vary due to location, environment, network conditions, and other factors. 4G LTE not available on all products, and in all regions.

#### HP It4211 LTE/EV-DO/HSPA+ 4G WWAN\*

#### Technology/Operating bands

LTE: 1900 (Band 2)/1700 (Band 4)/850 (Band 5)/700 (Band 13), 700 (Band 17), 1900 (Band 25) MHz  
HSPA+: 2100 (Band 1)/1900 (Band 2)/1700 (Band 4)/850 (Band 5), 800 (Band 8) MHz  
E-GPRS: 1900 (Band 2)/1800 (Band 3)/850 (Band 5)/900 (Band 8) MHz  
EV-DO: 800 (BC0)/1900 (BC1) MHz

#### Wireless protocol standards

3GPP Release 9 LTE Specification  
WCDMA R99, 3GPP Release 5, 6 and 7 UMTS Specification  
E-GPRS: Class B, Multi-slot class 33, coding schemes CS1 - CS4 and MSC1 - MSC9  
EVDO Release 0 and Release A

#### GPS

Standalone

#### GPS bands

1575.42 MHz, GLONASS 1602 MHz

#### Maximum data rates

LTE (Category 3): 100 Mbps (Download), 50Mbps (Upload)  
DC-HSPA+: 42 Mbps (Download), 5.76 Mbps (Upload)  
HSPA+: 21.6 Mbps (Download), 5.76 Mbps (Upload)  
WCDMA PS: 384 kbs (Download), 384 kbs (Upload)  
WCDMA CS: 64 kbs (Download), 64 kbs (Upload)  
E-GPRS: 236.8 kbps (Download), 236.8 kbps (Upload)  
GPRS: 85.6 kbps(Download), 85.6 kbps (Upload)  
EV-DO Rev.B: 14.7 Mbps (Download), 5.4 Mbps (Upload)  
EV-DO Rev.A: 3.1 Mbps (Download), 1.8 Mbps (Upload)

#### Maximum output power

LTE: +23 dBm (+1/- 2 dBm)  
HSPA+: +24 dBm (+1/- 2 dBm)  
E-GPRS Band 1800/1900: +25 dBm (+/-1 dBm)  
E-GPRS Band 850/900: +26 dBm (+/-1 dBm)  
GPRS 1800/1900: +30 dBm (+1/-2 dBm)  
GPRS 850/900: +32 dBm (+/- 1 dBm)  
EV-DO: +24 dBm (+/-1 dBm)

#### Maximum power consumption

LTE: 1,200 mA (peak); <900 mA (average)  
HSPA+: 1,100 mA (peak); <800 mA (average)  
E-GPRS: 2,800 mA (peak); <500 mA (average)  
EV-DO: 1000 mA (peak); <700 mA (average)

#### Form Factor

M.2, 3042-S3 Key B

#### Weight

6 g

#### Dimensions

(Length x Width x Thickness)

1.65 x 1.18 x 0.09 in (42 x 30 x 2.3 mm)



### Technical Specifications

\* Mobile Broadband is an optional feature and requires factory configuration. Connection requires wireless data service contract, network support, and is not available in all areas. Contact service provider to determine the coverage area and availability. Connection speeds will vary due to location, environment, network conditions, and other factors.

|                                                                                                                  |                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                         |
|------------------------------------------------------------------------------------------------------------------|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Intel Dual Band Wireless-<br/>N 7260 802.11 a/b/g/n<br/>(2x2) WiFi + Bluetooth 4.0<br/>Combo Adaptor*, **</b> | <b>Wireless LAN Standards</b>      |                                                                                                                                                                                                                                                                                                                                                                                                                                  | IEEE 802.11a<br>IEEE 802.11b<br>IEEE 802.11g<br>IEEE 802.11n                                                                                                                                                            |
|                                                                                                                  | <b>Interoperability</b>            |                                                                                                                                                                                                                                                                                                                                                                                                                                  | Wi-Fi certified<br>Cisco Compatible Extensions Program compliant with Microsoft Windows 7, Windows Vista and XP (details at:<br><a href="http://www.hp.com/go/notebooks/WLAN">http://www.hp.com/go/notebooks/WLAN</a> ) |
|                                                                                                                  | <b>Frequency Band</b>              | 802.11b/g/n                                                                                                                                                                                                                                                                                                                                                                                                                      | 2.402 - 2.482 GHz                                                                                                                                                                                                       |
|                                                                                                                  |                                    | 802.11a/n                                                                                                                                                                                                                                                                                                                                                                                                                        | 4.9 - 4.95 GHz (Japan)<br>5.15 - 5.25 GHz<br>5.25 - 5.35 GHz<br>5.47 - 5.725 GHz<br>5.825 - 5.850 GHz                                                                                                                   |
|                                                                                                                  | <b>Antenna Structure</b>           | 2 transmit; 2 receive (2x2)                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                         |
|                                                                                                                  | <b>Data Rates</b>                  | 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps<br>802.11b: 1, 2, 5.5, 11 Mbps<br>802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps<br>802.11n: card will support rates for NSS=1 and NSS=2 for RX and TX for 20 and 40 MHz channels. Short and long guard interval shall be supported.                                                                                                                                                      |                                                                                                                                                                                                                         |
|                                                                                                                  | <b>Modulation</b>                  | Direct Sequence Spread Spectrum<br>CCK, BPSK, QPSK, 16-QAM, 64-QAM                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                         |
|                                                                                                                  | <b>Security<sup>1</sup></b>        | <ul style="list-style-type: none"> <li>• IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only</li> <li>• AES-CCMP: 128 bit in hardware</li> <li>• 802.1x authentication</li> <li>• WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES.</li> <li>• WPA2 certification</li> <li>• IEEE 802.11i</li> <li>• Cisco Certified Extensions, all versions through V5</li> <li>• WAPI</li> <li>• FIPS 140-2</li> </ul> |                                                                                                                                                                                                                         |
|                                                                                                                  | <b>Sub-channels</b>                | Multinational support with frequency bands and channels compliant to local regulations.                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                         |
|                                                                                                                  | <b>Network Architecture Models</b> | Ad-hoc (Peer to Peer)<br>Infrastructure (Access Point Required)                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                         |
|                                                                                                                  | <b>Roaming</b>                     | IEEE 802.11 compliant roaming between band Access Points                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                         |
|                                                                                                                  | <b>Output Power<sup>2</sup></b>    | <ul style="list-style-type: none"> <li>• 2.4G: +13.5dBm minimum</li> <li>• 5G: +12dBm minimum</li> </ul>                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                         |
|                                                                                                                  | <b>Power Consumption</b>           | Transmit: 2.0 Watts<br>Receive: 1.6 Watts                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                         |



### Technical Specifications

|                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
|                                                                                                                                                                                                                                                                                                               | Idle mode <sup>3</sup> : 250 mW (WLAN Associated)<br>Idle mode: 100 mW (WLAN unassociated)<br>Radio off: 75 mW                                                                                                                                                                                                                                                                                                                                                                  |                                |
| <b>Power Management</b>                                                                                                                                                                                                                                                                                       | ACPI and PCI Express compliant power management<br>802.11 compliant power saving mode                                                                                                                                                                                                                                                                                                                                                                                           |                                |
| <b>Receiver Sensitivity</b> <sup>4</sup>                                                                                                                                                                                                                                                                      | 802.11g:-90 dBm (6 Mbps), -89 dBm (9 Mbps), -87 dBm (12 Mbps), -85 dBm (18 Mbps), -82 dBm (24 Mbps), -79 dBm (36 Mbps), -76 dBm (48 Mbps), -74 dBm (54 Mbps)<br><br>802.11b:-95 dBm (1 Mbps), -93 dBm (2 Mbps), -91 dBm (5.5 Mbps), -88 dBm (11 Mbps)<br><br>802.11g:-90 dBm (6 Mbps), -89 dBm (9 Mbps), -87 dBm (12 Mbps), -85 dBm (18 Mbps), -82 dBm (24 Mbps), -79 dBm (36 Mbps), -76 dBm (48 Mbps), -74 dBm (54 Mbps)<br><br>802.11n:-69 dBm (150 Mbps), -66 dBm (300 Mbps) |                                |
| <b>Antenna Connections</b>                                                                                                                                                                                                                                                                                    | 2 U.FL type connectors (output impedance of 50 ± 2 ohms)                                                                                                                                                                                                                                                                                                                                                                                                                        |                                |
| <b>Form Factor</b>                                                                                                                                                                                                                                                                                            | PCI-Express Half-MiniCard                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                |
| <b>Dimensions</b>                                                                                                                                                                                                                                                                                             | 0.12 x 1.06 x 1.18 in (3.1 x 26.8 x 30.0 mm)                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                |
| <b>Weight</b>                                                                                                                                                                                                                                                                                                 | TBD                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                |
| <b>Operating Voltage</b>                                                                                                                                                                                                                                                                                      | 3.3v +/- 9%                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                |
| <b>Temperature</b>                                                                                                                                                                                                                                                                                            | Operating                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 14° to 158° F (-10° to 70° C)  |
|                                                                                                                                                                                                                                                                                                               | Non-operating                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | -40° to 176° F (-40° to 80° C) |
| <b>Humidity</b>                                                                                                                                                                                                                                                                                               | Operating                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 10% to 90% (non-condensing)    |
|                                                                                                                                                                                                                                                                                                               | Non-operating                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 5% to 95% (non-condensing)     |
| <b>Altitude</b>                                                                                                                                                                                                                                                                                               | Operating                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 0 to 10,000 ft (3,048 m)       |
|                                                                                                                                                                                                                                                                                                               | Non-operating                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 0 to 50,000 ft (15,240 m)      |
| <b>LED Activity</b>                                                                                                                                                                                                                                                                                           | LED Off - Radio OFF; Solid LED On - Radio ON                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                |
| <b>1. Check latest software/driver release for updates on supported security features.</b>                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                |
| <b>2. Maximum output power may vary by country according to local regulations.</b>                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                |
| <b>3. In Power Save Polling mode and on battery power.</b>                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                |
| <b>4. Receiver sensitivity is measured at a packet error rate of 8% for 802.11b (CCK modulation) and a packet error rate of 10% for 802.11a/g (OFDM modulation).</b>                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                |
| <b>5. WLAN supplier's client utility is required for Cisco Compatible Extensions support with Microsoft Windows XP. WLAN may also be compatible with certain third-party software supplicants. WLAN supplier IHV extensions required for Cisco Compatible Extensions support for Microsoft Windows Vista.</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                |
| <b>HP Integrated Module with Bluetooth 4.0+EDR Wireless Technology</b>                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                |
| <b>Bluetooth Specification</b>                                                                                                                                                                                                                                                                                | 4.0+EDR Compliant                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                |
| <b>Dimensions</b>                                                                                                                                                                                                                                                                                             | 1.18 x 0.26 x 0.13 in (30 x 6.5 x 3.25 mm)                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                |
| <b>Frequency Band</b>                                                                                                                                                                                                                                                                                         | 2402 to 2480 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                |
| <b>Number of Available Channels</b>                                                                                                                                                                                                                                                                           | 79 (1 MHz) available channels                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                |
| <b>Data Rates and Throughput</b>                                                                                                                                                                                                                                                                              | 3 Mbps data rate; throughput up to 2.17 Mbps<br>Synchronous Connection Oriented links up to 3, 64 kbps, voice channels<br>Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric or 1306.9 kbps symmetric                                                                                                                                                                                                                                                         |                                |



### Technical Specifications

|                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Transmit Power</b>                                                                                                                                                                                                                                                                                                    | -1.5 dBm to 4 dBm (Bluetooth Class II)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Receiver Sensitivity</b>                                                                                                                                                                                                                                                                                              | Better than -20 dBm at 0.1 % raw bit error rate                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Power Consumption</b>                                                                                                                                                                                                                                                                                                 | Peak (Tx) 264 mW<br>Peak (Rx) 231 mW<br>Sleep <1 mW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Antenna</b>                                                                                                                                                                                                                                                                                                           | Internally integrated within module                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Range</b>                                                                                                                                                                                                                                                                                                             | Up to 33 ft (10 m)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Electrical Interface</b>                                                                                                                                                                                                                                                                                              | USB 2.0 compliant                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Bluetooth Software Supported</b>                                                                                                                                                                                                                                                                                      | Microsoft Windows Plug and Play compliant<br>Broadcom Bluetooth for Windows<br>Microsoft Windows Bluetooth Software                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Link Topology</b>                                                                                                                                                                                                                                                                                                     | Point to Point, Multipoint Pico Nets up to 7 slaves                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Security</b>                                                                                                                                                                                                                                                                                                          | Full support of Bluetooth Security Provisions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Power Management</b>                                                                                                                                                                                                                                                                                                  | Microsoft Windows ACPI, and USB Bus Support<br>Self configurable to optimize power conservation in all operating modes, including Standby, Hold, Park, and Sniff                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Certifications</b>                                                                                                                                                                                                                                                                                                    | All necessary regulatory approvals for supported countries, including:<br>FCC (47 CFR) Part 15C, Section 15.247 & 15.249<br>ETS 300 328, ETS 300 826<br>Low Voltage Directive IEC950<br>UL, CSA, and CE Mark                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Bluetooth Profiles Supported</b>                                                                                                                                                                                                                                                                                      | Serial Port Profile (SPP) <sup>1</sup><br>Service Discovery Application Profile (SDAP)<br>Dial-Up Networking (DUN) <sup>1,2</sup><br>Generic Object Exchange Profile (GOEP) <sup>1,2</sup><br>Object Push Profile (OPP) <sup>1,2</sup><br>File Transfer Profile (FTP)<br>Synchronization Profile (SYNC)<br>Hard Copy Cable Replacement (HCRP) <sup>1,2</sup><br>Personal Area Networking Profile (PAN) <sup>1,2</sup><br>Human Interface Device Profile (HID) <sup>1,2</sup><br>FAX Profile (FAX)<br>Basic Imaging Profile (BIP) <sup>2</sup><br>Headset Profile (HSP)<br>Hands Free Profile (HFP)<br>Advanced Audio Distribution Profile (A2DP) |
| <b>1. indicates the profile is supported by Microsoft Windows XP SP2</b><br><b>2. indicates the profile is part of Windows Vista</b><br><b>* Wireless access point and internet service required. Availability of public wireless access points limited.</b><br><b>** Wifi + Bluetooth combo is an optional feature.</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Intel Dual Band Wireless-AC 7260 802.11 ac (2x2) WiFi + BT 4.0 combo Adapter<sup>*, **</sup></b>                                                                                                                                                                                                                      | <b>Wireless LAN Standards</b> IEEE 802.11a<br>IEEE 802.11b<br>IEEE 802.11g<br>IEEE 802.11n<br>IEEE 802.11ac                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Interoperability</b>                                                                                                                                                                                                                                                                                                  | Wi-Fi certified                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |



### Technical Specifications

|                                         |                                                                                                                                                                                                                                                                                                                             |
|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Frequency Band</b>                   | 802.11b/g/n<br>2.402 - 2.482 GHz<br>802.11a/n<br>4.9 - 4.95 GHz (Japan)<br>5.15 - 5.25 GHz<br>5.25 - 5.35 GHz<br>5.47 - 5.725 GHz<br>5.825 - 5.850 GHz<br>2.402 - 2.482 GHz                                                                                                                                                 |
| <b>Data Rates</b>                       | 802.11b: 1, 2, 5.5, 11 Mbps<br>802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps<br>802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps<br>802.11n: MCS 0 ~ MCS 15, (20MHz, and 40MHz)<br>802.11ac : MCS0 ~ MCS9, (1SS, and 2SS) (20MHz, 40MHz, and 80MHz)                                                                                  |
| <b>Modulation</b>                       | Direct Sequence Spread Spectrum<br>BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM                                                                                                                                                                                                                                                 |
| <b>Security<sup>1</sup></b>             | IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only<br>AES-CCMP: 128 bit in hardware<br>802.1x authentication<br>WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES.<br>WPA2 certification<br>IEEE 802.11i<br>Cisco Certified Extensions, all versions through CCX4 and CCX Lite<br>WAPI<br>FIPS 140-2 |
| <b>Network Architecture Models</b>      | Ad-hoc (Peer to Peer)<br>Infrastructure (Access Point Required)                                                                                                                                                                                                                                                             |
| <b>Roaming</b>                          | IEEE 802.11 compliant roaming between access points                                                                                                                                                                                                                                                                         |
| <b>Output Power<sup>2</sup></b>         | 2.4G: +13.5dBm minimum<br>5G: +12dBm minimum<br>Maximum output power must be able to achieve modular regulatory certification with notebooks that have antennas >20cm from the user and peak gain of +3dBi at 2.4GHz and +4dBi at 5GHz                                                                                      |
| <b>Power Consumption</b>                | Transmit: 2.0 W (max)<br>Receive: 1.6 W (max)<br>Idle mode (PSP): 250 mW (WLAN Associated)<br>Idle mode: 100 mW (WLAN unassociated)<br>Radio disabled: 75 mW                                                                                                                                                                |
| <b>Power Management</b>                 | ACPI and PCI Express compliant power management<br>802.11 compliant power saving mode                                                                                                                                                                                                                                       |
| <b>Receiver Sensitivity<sup>3</sup></b> | 802.11b:-95 dBm (1 Mbps), -93 dBm (2 Mbps), -91 dBm (5.5 Mbps), -88 dBm (11 Mbps)<br><br>802.11a/g:-90 dBm (6 Mbps), -89 dBm (9 Mbps), -87 dBm (12 Mbps), -85 dBm (18 Mbps), -82 dBm (24 Mbps), -79 dBm (36 Mbps), -76 dBm (48 Mbps), -74 dBm (54 Mbps)<br><br>802.11n:-69 dBm (72.2 Mbps), -66 dBm (300 Mbps)              |
| <b>Antenna type</b>                     | High efficiency antenna with spatial diversity, mounted in the display enclosure                                                                                                                                                                                                                                            |



### Technical Specifications

|                                     |                                                                                                                                                                                                                                                                                                                                                          |                                |
|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
|                                     | Two embedded dual band 2.4/5 GHz antennas are provided to the card to support WLAN MIMO communications and Bluetooth communications                                                                                                                                                                                                                      |                                |
| <b>Form Factor</b>                  | PCI-Express Half-MiniCard                                                                                                                                                                                                                                                                                                                                |                                |
| <b>Dimensions</b>                   | 0.19 x 1.06 x 1.18 in (4.75 x 26.8 x 30 mm)                                                                                                                                                                                                                                                                                                              |                                |
| <b>Weight</b>                       | 3.1g                                                                                                                                                                                                                                                                                                                                                     |                                |
| <b>Operating Voltage</b>            | 3.3v +/- 9%                                                                                                                                                                                                                                                                                                                                              |                                |
| <b>Temperature</b>                  | Operating                                                                                                                                                                                                                                                                                                                                                | 14° to 158° F (-10° to 70° C)  |
|                                     | Non-operating                                                                                                                                                                                                                                                                                                                                            | -40° to 176° F (-40° to 80° C) |
| <b>Humidity</b>                     | Operating                                                                                                                                                                                                                                                                                                                                                | 10% to 90% (non-condensing)    |
|                                     | Non-operating                                                                                                                                                                                                                                                                                                                                            | 5% to 95% (non-condensing)     |
| <b>Altitude</b>                     | Operating                                                                                                                                                                                                                                                                                                                                                | 0 to 10,000 ft (3,048 m)       |
|                                     | Non-operating                                                                                                                                                                                                                                                                                                                                            | 0 to 50,000 ft (15,240 m)      |
| <b>LED Activity</b>                 | LED Off - Radio OFF; Solid LED On - Radio ON                                                                                                                                                                                                                                                                                                             |                                |
|                                     | <b>1. Check latest software/driver release for updates on supported security features.</b><br><b>2. Maximum output power may vary by country according to local regulations.</b><br><b>3. Receiver sensitivity is measured at a packet error rate of 8% for 802.11b (CKK modulation) and a packet error rate of 10% for 802.11a/g (OFDM modulation).</b> |                                |
|                                     | <b>Bluetooth Specification</b>                                                                                                                                                                                                                                                                                                                           |                                |
|                                     | V4.0 High Speed, V2.1+EDR, backwards compatible with V1.1, 1.2 and 2.0                                                                                                                                                                                                                                                                                   |                                |
| <b>Number of Available Channels</b> | 79 (1 MHz) available channels                                                                                                                                                                                                                                                                                                                            |                                |
| <b>Data Rates and Throughput</b>    | 3 Mbps data rate; throughput up to 2.17 Mbps                                                                                                                                                                                                                                                                                                             |                                |
|                                     | Synchronous Connection Oriented links up to 3, 64 kbps, voice channels                                                                                                                                                                                                                                                                                   |                                |
|                                     | Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric or 1306.9 kbps symmetric                                                                                                                                                                                                                                                            |                                |
| <b>Transmit Power</b>               | -6 dBm to 4 dBm (Bluetooth Class II)                                                                                                                                                                                                                                                                                                                     |                                |
| <b>Receiver Sensitivity</b>         | Better than -80 dBm at 0.1 % raw bit error rate                                                                                                                                                                                                                                                                                                          |                                |
| <b>Power Consumption</b>            | Peak (Tx) 330 mW                                                                                                                                                                                                                                                                                                                                         |                                |
|                                     | Peak (Rx) 230 mW                                                                                                                                                                                                                                                                                                                                         |                                |
|                                     | Sleep <17 mW                                                                                                                                                                                                                                                                                                                                             |                                |
| <b>Antenna</b>                      | Internally integrated within module                                                                                                                                                                                                                                                                                                                      |                                |
| <b>Range</b>                        | Up to 33 ft (10 m)                                                                                                                                                                                                                                                                                                                                       |                                |
| <b>Electrical Interface</b>         | USB 2.0 compliant                                                                                                                                                                                                                                                                                                                                        |                                |
|                                     | Microsoft Windows Plug and Play compliant                                                                                                                                                                                                                                                                                                                |                                |
| <b>Bluetooth Software Supported</b> | Broadcom Bluetooth for Windows<br>Microsoft Windows Bluetooth Software                                                                                                                                                                                                                                                                                   |                                |
| <b>Link Topology</b>                | Point to Point, Multipoint Pico Nets up to 7 slaves                                                                                                                                                                                                                                                                                                      |                                |
| <b>Security</b>                     | Full support of Bluetooth Security Provisions                                                                                                                                                                                                                                                                                                            |                                |
| <b>Power Management</b>             | Microsoft Windows ACPI, and USB Bus Support                                                                                                                                                                                                                                                                                                              |                                |
|                                     | Self-configurable to optimize power conservation in all operating modes, including Standby, Hold, Park, and Sniff                                                                                                                                                                                                                                        |                                |
| <b>Certifications</b>               | All necessary regulatory approvals for supported countries, including:<br>FCC (47 CFR) Part 15C, Section 15.247 & 15.249<br>ETS 300 328, ETS 300 826                                                                                                                                                                                                     |                                |



### Technical Specifications

#### Bluetooth Profiles Supported

Low Voltage Directive IEC950  
UL, CSA, and CE Mark

Generic Access Profile (GAP)  
Service Discovery Application Profile (SDAP)  
Serial Port Profile (SPP)  
Dial\_Up Networking Profile (DUN)  
Generic Object Exchange Profile (GOEP)  
Object Push Profile (OPP)  
File Transfer Profile (FTP)  
Synchronization Profile (SYNC)  
Hard Copy Cable Replacement (HCRP)  
Personal Area Networking Profile (PAN)  
Human Interface Device Profile (HID)  
Generic Audio/Video Distribution Profile (GAVDP)  
Advanced Audio/Video Distribution Profile (A2DP)  
FAX Profile (FAX)  
Basic Imaging Profile (BIP)  
Headset Profile (HSP)  
Hands Free Profile (HFP)  
Basic Printing Profile (BPP)  
VDP (Video Distribution Profile)  
AVRCP (Audio Video Remote Control Profile)

**\* Wireless access point and internet service required. Availability of public wireless access points limited. The specifications for the 802.11ac WLAN are draft specifications and are not final. If the final specifications differ from the draft specifications, it may affect the ability of the notebook to communicate with other 802.11ac WLAN devices**

**\*\* Bluetooth sold separately or as an optional feature.**

### AUDIO/MULTIMEDIA - DTS SOUND+

|                             |                                     |                                    |
|-----------------------------|-------------------------------------|------------------------------------|
| <b>Hardware</b>             | <b>Implementation</b>               | Realtek ALC3227-CG                 |
|                             | <b>Function Key Volume Controls</b> | Volume up, volume down, and mute   |
|                             | <b>Full Duplex</b>                  | Yes                                |
|                             | <b>Microphone In</b>                | Stereo                             |
|                             | <b>Headphone/Line Out</b>           | Stereo                             |
|                             | <b>Integrated Microphone</b>        | Yes, dual digital microphone array |
| <b>Audio Output Quality</b> | <b>Frequency Response</b>           | 10 Hz – .454*Fs                    |
|                             | <b>Signal to Noise Ratio</b>        | 95 dB (DAC), 88dB (ADC)            |
|                             | <b>Total Harmonic Distortion</b>    | 0.01%                              |
|                             | <b>Play/Record Sampling Rate(s)</b> | 44.1k/48k/96k/192kHz               |
|                             | <b>DAC</b>                          | 16, 20 or 24-bit                   |
|                             | <b>ADC</b>                          | 16, 20 or 24-bit                   |



### Technical Specifications

|                                   |                     |         |
|-----------------------------------|---------------------|---------|
| <b>Integrated Stereo Speakers</b> | <b>Power Rating</b> | 2 Watts |
|                                   | <b>Impedance</b>    | 4 Ohms  |

### POWER

|                            |                                     |                                                                                                                                                                                                                                                                                                                                            |                                                           |                            |
|----------------------------|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|----------------------------|
| HP 45W Smart AC Adapter    | Dimensions                          | 3.78 x 1.95 x 0.88 in (9.6 x 4.95 x 2.24 cm)                                                                                                                                                                                                                                                                                               |                                                           |                            |
|                            | Input                               | 90 to 265 VAC                                                                                                                                                                                                                                                                                                                              |                                                           |                            |
|                            |                                     | Input Efficiency                                                                                                                                                                                                                                                                                                                           | 87% min at 115 VAC                                        |                            |
|                            | Output                              | Input frequency range                                                                                                                                                                                                                                                                                                                      | 47 to 63 Hz                                               |                            |
|                            |                                     | Input AC current                                                                                                                                                                                                                                                                                                                           | 1.4 A at 90 VAC and maximum load                          |                            |
|                            |                                     | Output power                                                                                                                                                                                                                                                                                                                               | 45W                                                       |                            |
|                            |                                     | DC output                                                                                                                                                                                                                                                                                                                                  | 19.5V                                                     |                            |
|                            |                                     | Hold-up time                                                                                                                                                                                                                                                                                                                               | 5 msec at 115 VAC input                                   |                            |
|                            |                                     | Output current limit                                                                                                                                                                                                                                                                                                                       | <8A, Over voltage protection- 29V max automatic shutdown  |                            |
|                            |                                     | Connector                                                                                                                                                                                                                                                                                                                                  | 3 pin/grounded, mates with interchangeable cords          |                            |
|                            |                                     | Environmental Design                                                                                                                                                                                                                                                                                                                       | Operating temperature                                     | 32° to 95° F (0° to 35° C) |
|                            | Non-operating (storage) temperature |                                                                                                                                                                                                                                                                                                                                            | -4° to 121° F (-20° to 85° C)                             |                            |
|                            | Altitude                            |                                                                                                                                                                                                                                                                                                                                            | 0 to 16,405 ft (0 to 5,000 m)                             |                            |
|                            | Humidity                            |                                                                                                                                                                                                                                                                                                                                            | 0% to 95%                                                 |                            |
|                            | Storage Humidity                    |                                                                                                                                                                                                                                                                                                                                            | 0% to 95%                                                 |                            |
|                            | EMI and Safety Certifications       | CE Mark - full compliance with LVD and EMC directives; Worldwide safety standards - IEC60950, EN60950, UL60950, Class1, SELV; Agency approvals - C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCC, NOM-1 NYCE; Reliability - failure rate of less than 0.1% annually within the first three years of operation. |                                                           |                            |
| HP 65W EM Smart AC Adapter | Dimensions                          | 126.0 x 50.0 x 30.0 mm                                                                                                                                                                                                                                                                                                                     |                                                           |                            |
|                            | Weight                              | 300 g                                                                                                                                                                                                                                                                                                                                      |                                                           |                            |
|                            | Input                               | 90 to 265 VAC                                                                                                                                                                                                                                                                                                                              |                                                           |                            |
|                            |                                     | Input Efficiency                                                                                                                                                                                                                                                                                                                           | 87% min at 115 VAC                                        |                            |
|                            | Output                              | Input frequency range                                                                                                                                                                                                                                                                                                                      | 47 to 63 Hz                                               |                            |
|                            |                                     | Input AC current                                                                                                                                                                                                                                                                                                                           | 1.7 A at 90 VAC                                           |                            |
|                            |                                     | Output power                                                                                                                                                                                                                                                                                                                               | 65W                                                       |                            |
|                            |                                     | DC output                                                                                                                                                                                                                                                                                                                                  | 19.5V                                                     |                            |
|                            |                                     | Hold-up time                                                                                                                                                                                                                                                                                                                               | 5 msec at 115 VAC input                                   |                            |
|                            |                                     | Output current limit                                                                                                                                                                                                                                                                                                                       | <11A, Over voltage protection- 29V max automatic shutdown |                            |
|                            |                                     | Connector                                                                                                                                                                                                                                                                                                                                  | 3 pin/grounded, mates with interchangeable cords          |                            |
|                            | Environmental Design                | Operating temperature                                                                                                                                                                                                                                                                                                                      | 32° to 95° F (0° to 35° C)                                |                            |



### Technical Specifications

|                                                               |                                          |                                            |                               |                                                                                                                                                                                                                                                                                               |
|---------------------------------------------------------------|------------------------------------------|--------------------------------------------|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                               |                                          | <b>Non-operating (storage) temperature</b> |                               | -4° to 185° F (-20° to 85° C)                                                                                                                                                                                                                                                                 |
|                                                               |                                          | <b>Altitude</b>                            |                               | 0 to 10,000 ft (0 to 3,048 m)                                                                                                                                                                                                                                                                 |
|                                                               |                                          | <b>Humidity</b>                            |                               | 20% to 95%                                                                                                                                                                                                                                                                                    |
|                                                               |                                          | <b>Storage Humidity</b>                    |                               | 10% to 95%                                                                                                                                                                                                                                                                                    |
|                                                               |                                          | <b>EMI and Safety Certifications</b>       |                               | CE Mark - full compliance with LVD and EMC directives; Worldwide safety standards - IEC60950, EN60950, UL60950, Class1, SELV; Agency approvals - C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCC, NOM-1 NYCE; MTBF - over 200,000 hours at 25°C ambient condition |
| <b>HP 4-cell Lithium-Ion Long Life Battery (52 WHr)</b>       | <b>Dimensions (H x W x L)</b>            | 0.31 x 5.25 x 8.15in (0.8 x 13.3 x 20.7cm) |                               |                                                                                                                                                                                                                                                                                               |
|                                                               | <b>Weight (max)</b>                      | 0.74 lb (0.335kg)                          |                               |                                                                                                                                                                                                                                                                                               |
|                                                               | <b>Cells/Type</b>                        | 4-cell Lithium-Ion                         |                               |                                                                                                                                                                                                                                                                                               |
|                                                               | <b>Energy</b>                            | Voltage                                    | 14.8V                         |                                                                                                                                                                                                                                                                                               |
|                                                               |                                          | Amp-hour capacity                          | 3.515Ah                       |                                                                                                                                                                                                                                                                                               |
|                                                               |                                          | Watt-hour capacity                         | 52Wh                          |                                                                                                                                                                                                                                                                                               |
|                                                               | <b>Temperature</b>                       | Operating (Charging)                       | 32° to 113° F (0° to 45° C)   |                                                                                                                                                                                                                                                                                               |
|                                                               |                                          | Operating (Discharging)                    | 14° to 122° F(-10° to 50° C)  |                                                                                                                                                                                                                                                                                               |
|                                                               |                                          | Non-operating                              | -4° to 122° F (-20° to 50° C) |                                                                                                                                                                                                                                                                                               |
|                                                               | <b>Battery Re-Charge Time</b>            | System in OFF or Standby Mode              | 2.5 hours                     |                                                                                                                                                                                                                                                                                               |
|                                                               |                                          | System ON                                  | 3 to 5 hours                  |                                                                                                                                                                                                                                                                                               |
|                                                               | <b>Fuel Gauge LED</b>                    | No                                         |                               |                                                                                                                                                                                                                                                                                               |
|                                                               | <b>Optional Travel Battery Available</b> | No                                         |                               |                                                                                                                                                                                                                                                                                               |
| <b>HP 6-cell Lithium-Ion Long Life Slice Battery (60 WHr)</b> | <b>Dimensions (H x W x L)</b>            | 0.28 x 12.6 x 8.39in (0.7 x 32 x 21.3 cm)  |                               |                                                                                                                                                                                                                                                                                               |
|                                                               | <b>Weight (max)</b>                      | 1.72 lb (0.78 kg)                          |                               |                                                                                                                                                                                                                                                                                               |
|                                                               | <b>Cells/Type</b>                        | 6-cell Lithium-Ion                         |                               |                                                                                                                                                                                                                                                                                               |
|                                                               | <b>Energy</b>                            | Voltage                                    | 11.4V                         |                                                                                                                                                                                                                                                                                               |
|                                                               |                                          | Amp-hour capacity                          | 5.4Ah                         |                                                                                                                                                                                                                                                                                               |
|                                                               |                                          | Watt-hour capacity                         | 60Wh                          |                                                                                                                                                                                                                                                                                               |
|                                                               | <b>Temperature</b>                       | Operating (Charging)                       | 32° to 113° F (0° to 45° C)   |                                                                                                                                                                                                                                                                                               |
|                                                               |                                          | Operating (Discharging)                    | 14° to 122° F(-10° to 50° C)  |                                                                                                                                                                                                                                                                                               |
|                                                               |                                          | Non-operating                              | -4° to 122° F (-20° to 50° C) |                                                                                                                                                                                                                                                                                               |
|                                                               | <b>Battery Re-Charge Time</b>            | System in OFF or Standby Mode              | 3.5 to 5 hours                |                                                                                                                                                                                                                                                                                               |
|                                                               |                                          | System ON                                  | 4 to 7 hours                  |                                                                                                                                                                                                                                                                                               |
|                                                               | <b>Fuel Gauge LED</b>                    | No                                         |                               |                                                                                                                                                                                                                                                                                               |



### Technical Specifications

**Optional Travel Battery** No  
**Available**

#### ENVIRONMENTAL

|                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                     |                     |
|----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|---------------------|
| <b>Eco-Label Certifications &amp; declarations</b>                         | <p>This product has received or is in the process of being certified to the following approvals and may be labeled with one or more of these marks:</p> <ul style="list-style-type: none"> <li>• IT ECO declaration</li> <li>• US ENERGY STAR®</li> <li>• EPEAT &lt;Gold&gt; registered in the United States. See <a href="http://www.epeat.net">http://www.epeat.net</a> for registration status in your country.</li> </ul>                                                                                                                             |                     |                     |
| <b>System Configuration</b>                                                | <p>The configuration used for the Energy Consumption and Declared Noise Emissions data for the Notebook model is based on a “Typically Configured Notebook”.</p>                                                                                                                                                                                                                                                                                                                                                                                          |                     |                     |
| <b>Energy Consumption (in accordance with US ENERGY STAR® test method)</b> | <b>115VAC, 60Hz</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>230VAC, 50Hz</b> | <b>100VAC, 60Hz</b> |
| Normal Operation (Short idle)                                              | 9.41 W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 9.77 W              | 9.59 W              |
| Normal Operation (Long idle)                                               | 5.32 W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 5.51 W              | 5.4 W               |
| Sleep                                                                      | 0.88 W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 0.86 W              | 0.9 W               |
| Off                                                                        | 0.44 W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 0.44 W              | 0.45 W              |
|                                                                            | <p>Note:</p> <p>Energy efficiency data listed is for an ENERGY STAR® compliant product if offered within the model family. HP computers marked with the ENERGY STAR® Logo are compliant with the applicable U.S. Environmental Protection Agency (EPA) ENERGY STAR® specifications for computers. If a model family does not offer ENERGY STAR® compliant configurations, then energy efficiency data listed is for a typically configured PC featuring a hard disk drive, a high efficiency power supply, and a Microsoft Windows® operating system.</p> |                     |                     |
| <b>Heat Dissipation*</b>                                                   | <b>115VAC, 60Hz</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>230VAC, 50Hz</b> | <b>100VAC, 60Hz</b> |



### Technical Specifications

|                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                              |           |
|---------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-----------|
| Normal Operation (Short idle)                                       | 32 BTU/hr                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 33 BTU/hr                                    | 33 BTU/hr |
| Normal Operation (Long idle)                                        | 18 BTU/hr                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 19 BTU/hr                                    | 18 BTU/hr |
| Sleep                                                               | 3 BTU/hr                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 3 BTU/hr                                     | 3 BTU/hr  |
| Off                                                                 | 2 BTU/hr                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 2 BTU/hr                                     | 2 BTU/hr  |
|                                                                     | *NOTE: Heat dissipation is calculated based on the measured watts, assuming the service level is attained for one hour.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                              |           |
| Declared Noise Emissions (in accordance with ISO 7779 and ISO 9296) | Sound Power (L <sub>WAd</sub> , bels)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Sound Pressure (L <sub>pAm</sub> , decibels) |           |
| Typically Configured – Idle                                         | 2.7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 21                                           |           |
| Fixed Disk – Random writes                                          | 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 23                                           |           |
| Longevity and Upgrading                                             | This product can be upgraded, possibly extending its useful life by several years. Upgradeable features and/or components contained in the product may include: <ul style="list-style-type: none"><li>• 3 USB ports</li><li>• 1 PC card slot (type I/II)</li><li>• 1 ExpressCard/54 slot</li><li>• 1 IEEE 1394 Port</li><li>• 2 SODIMM memory slots</li><li>• Optional expansion base docking station</li><li>• 1 multi-bay II storage port</li><li>• Interchangeable HDD??</li></ul> <p>&lt;edit list of features as required&gt;</p> <p>Spare parts are available throughout the warranty period and or for up to “5” years after the end of production.</p> |                                              |           |
| Batteries                                                           | This battery(s) in this product comply with EU Directive 2006/66/EC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                              |           |
|                                                                     | Batteries used in the product do not contain:<br>Mercury greater the1ppm by weight<br>Cadmium greater than 20ppm by weight                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                              |           |



### Technical Specifications

|                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                     |        |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|--------|
|                               | Battery size: CR2032 (coin cell)<br>Battery type: Lithium<br>Battery size: 6-cell high capacity Lithium-Ion battery (optional 8 cell available)<br>Battery type:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                     |        |
| <b>Additional Information</b> | <ul style="list-style-type: none"> <li>This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive - 2011/65/EC.</li> <li>This HP product is designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive – 2002/96/EC.</li> <li>This product is in compliance with California Proposition 65 (State of California; Safe Drinking Water and Toxic Enforcement Act of 1986).</li> <li>This product is in compliance with the IEEE 1680 (EPEAT) standard at the &lt;gold&gt; level, see <a href="http://www.epeat.net">www.epeat.net</a></li> <li>Plastics parts weighing over 25 grams used in the product are marked per ISO11469 and ISO1043.</li> <li>This product contains 0% post-consumer recycled plastic (by wt.)</li> <li>This product is 96.8% recycle-able when properly disposed of at end of life.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                               |                                     |        |
| <b>Packaging Materials</b>    | <b>External:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | PAPER/Corrugated                    | 549 g  |
|                               | <b>Internal:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | PLASTIC/EPE (Expanded Polyethylene) | 54.9 g |
|                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | PLASTIC/Polyethylene low density    | 26 g   |
|                               | The plastic packaging material contains at least 50% recycled content.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                     |        |
|                               | The corrugated paper packaging materials contains at least 70% recycled content.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                     |        |
| <b>Material Usage</b>         | This product does not contain any of the following substances in excess of regulatory limits (refer to the HP General Specification for the Environment at <a href="http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/qse.pdf">http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/qse.pdf</a> ): <ul style="list-style-type: none"> <li>Asbestos</li> <li>Certain Azo Colorants</li> <li>Certain Brominated Flame Retardants – may not be used as flame retardants in plastics</li> <li>Cadmium</li> <li>Chlorinated Hydrocarbons</li> <li>Chlorinated Paraffins</li> <li>Formaldehyde</li> <li>Halogenated Diphenyl Methanes</li> <li>Lead carbonates and sulfates</li> <li>Lead and Lead compounds</li> <li>Mercuric Oxide Batteries</li> <li>Nickel – finishes must not be used on the external surface designed to be frequently handled or carried by the user.</li> <li>Ozone Depleting Substances</li> <li>Polybrominated Biphenyls (PBBs)</li> <li>Polybrominated Biphenyl Ethers (PBBEs)</li> <li>Polybrominated Biphenyl Oxides (PBBOs)</li> <li>Polychlorinated Biphenyl (PCB)</li> <li>Polychlorinated Terphenyls (PCT)</li> <li>Polyvinyl Chloride (PVC) – except for wires and cables, and certain retail packaging has been voluntarily removed from most applications.</li> </ul> |                                     |        |



### Technical Specifications

|                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                            | <ul style="list-style-type: none"> <li>Radioactive Substances</li> <li>Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Packaging Usage</b>                                     | <p>HP follows these guidelines to decrease the environmental impact of product packaging:</p> <ul style="list-style-type: none"> <li>Eliminate the use of heavy metals such as lead, chromium, mercury and cadmium in packaging materials.</li> <li>Eliminate the use of ozone-depleting substances (ODS) in packaging materials.</li> <li>Design packaging materials for ease of disassembly.</li> <li>Maximize the use of post-consumer recycled content materials in packaging materials.</li> <li>Use readily recyclable packaging materials such as paper and corrugated materials.</li> <li>Reduce size and weight of packages to improve transportation fuel efficiency.</li> <li>Plastic packaging materials are marked according to ISO 11469 and DIN 6120 standards.</li> </ul>                                                                                                  |
| <b>End-of-life Management and Recycling</b>                | <p>Hewlett-Packard offers end-of-life HP product return and recycling programs in many geographic areas. To recycle your product, please go to: <a href="http://www.hp.com/go/reuse-recycle">http://www.hp.com/go/reuse-recycle</a> or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.</p> <p>The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: <a href="http://www.hp.com/go/recyclers">http://www.hp.com/go/recyclers</a>. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.</p>                   |
| <b>Hewlett-Packard Corporate Environmental Information</b> | <p>For more information about HP's commitment to the environment:</p> <p>Global Citizenship Report<br/> <a href="http://www.hp.com/hpinfo/globalcitizenship/qcreport/index.html">http://www.hp.com/hpinfo/globalcitizenship/qcreport/index.html</a></p> <p>Eco-label certifications<br/> <a href="http://www8.hp.com/us/en/hp-information/environment/ecolabels.html">http://www8.hp.com/us/en/hp-information/environment/ecolabels.html</a></p> <p>ISO 14001 certificates:<br/> <a href="http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/PC_GBU_Product_Design_ISO_14K_Certificate.pdf">http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/PC_GBU_Product_Design_ISO_14K_Certificate.pdf</a></p> <p>and<br/> <a href="http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf">http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf</a></p> |

### MATERIAL USAGE



### Technical Specifications

This product does not contain any of the following substances in excess of regulatory limits (for reference of these limits please refer to the HP General Specification of the Environment ([http://www.hp.com/hpinfo/globalcitizenship/environment/supplychain/gen\\_specifications.html](http://www.hp.com/hpinfo/globalcitizenship/environment/supplychain/gen_specifications.html))):

- Asbestos
- Certain Azo Colorants
- Certain Brominated Flame Retardants - may not be used as flame retardants in plastics
- Cadmium
- Chlorinated Hydrocarbons
- Chlorinated Paraffins
- Formaldehyde
- Halogenated Diphenyl Methanes
- Lead carbonates and sulfates
- Lead and Lead compounds
- Mercuric Oxide Batteries
- Ozone Depleting Substances
- Polybrominated Biphenyls (PBBs)
- Polybrominated Biphenyl Ethers (PBBEs)
- Polybrominated Biphenyl Oxides (PBBOs)
- Polychlorinated Biphenyl (PCB)
- Polychlorinated Terphenyls (PCT)
- Polyvinyl Chloride (PVC) - except for wires and cables, and certain retail packaging has been voluntarily removed from most applications.
- Radioactive Substances
- Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO)
- Nickel finishes that release greater than 0.5 µgrams/cm<sup>2</sup>/week, measured according to EN 1811:1998, are not used on any product surface designed to be frequently handled or touched by users.

### END-OF-LIFE MANAGEMENT AND RECYCLING

Hewlett-Packard offers end-of-life HP product return and recycling programs in many geographic areas. To recycle your product, please go to: <http://www.hp.com/go/reuse-recycle> or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.

The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at:

<http://www.hp.com/go/recyclers>. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

### HEWLETT-PACKARD CORPORATE ENVIRONMENTAL INFORMATION

For more information about HP's commitment to the environment:

Global Citizenship Report

<http://www.hp.com/hpinfo/globalcitizenship/qcreport/index.html>

Environment website

<http://www.hp.com/environment>

Eco-label certifications

<http://www.hp.com/hpinfo/globalcitizenship/environment/productdesign/ecolabels.html>



### *Technical Specifications*

ISO 14001 certificates:

<http://www.hp.com/hpinfo/globalcitizenship/environment/operations/envmanagement.html>

### **Country of Origin**

China



*Options and Accessories (sold separately and availability may vary by country)*

| Type             | Description                                                         | Part #      |
|------------------|---------------------------------------------------------------------|-------------|
| <b>Cases</b>     | HP Business Slim Top Load (up to 14.1" x .75" thick)                | H5M91AA     |
|                  | HP Essential Backpack (up to 15.6")                                 | H1D24AA     |
|                  | HP Essential Top Load (up to 15.6)                                  | H2W17AA#xxx |
|                  | HP Business Backpack (up to 17.3")                                  | H5M90AA     |
|                  | HP Essential Top Load Case (up to 15.6")                            | H2W17AA#xxx |
|                  | HP Essential Backpack (up to 15.6")                                 | H1D24AA     |
|                  | HP Essential Messenger Case (up to 17.3")                           | H1D25AA     |
|                  | HP BP848 TAA Business Nylon Top Load (up to 15.6")                  | LU934AA#ABA |
|                  | HP Professional Series Carrying Case (up to 15.6")                  | H4J90AA     |
|                  | HP Professional Slim Top Load Case (up to 17.3")                    | H4J91AA     |
|                  | HP Professional Series Carrying Case TSA (up to 15.6")              | H4J92AA     |
|                  | HP Professional Series Backpack (up to 15.6")                       | H4J93AA     |
|                  | HP Professional Leather Case (up to 17.3")                          | H4J94AA     |
|                  | HP Business Backpack (up to 17.3")                                  | H5M90AA     |
|                  | HP Business Case (up to 15.6")                                      | H5M92AA     |
|                  | HP Business Slim Top Load (up to 14.1" x .75" thick)                | H5M91AA     |
|                  | HP Business 4 Wheel Roller Case                                     | H5M93AA     |
|                  | HP Ladies Brown Leather Tote (up to 15.6")                          | F3W12AA     |
|                  | HP Ladies Black Tote (up to 15.6")                                  | F3W13AA     |
|                  | HP Executive Leather Messenger (up to 14.0" x 1") APJ and EMEA only | K0A31AA     |
|                  | HP Slim Ultrabook Messenger (up to 15.6" x .88"/22/5mm)             | F3W14AA     |
|                  | HP Slim Ultrabook Top Load (up to 15.6" x .88"/22/5mm)              | F3W15AA     |
|                  | HP Slim Ultrabook Backpack (up to 15.6" x .88"/22/5mm)              | F3W16AA     |
|                  | HP Ultrabook Sleeve (up to 14.0/35.6cm x 1"/25.4mm)                 | F7Z99AA     |
|                  | HP Ultrabook Sleeve (up to 15.6"/39.8cm x 1"/25.4mm)                | F8A00AA     |
| <b>Docking</b>   | HP 2013 UltraSlim Docking Station                                   | D9Y32AA     |
|                  | HP Adjustable Dual Monitor Stand                                    | AW664AA#xxx |
|                  | HP Display and Notebook Stand II                                    | E8G00AA#xxx |
|                  | HP Dual Hinge II Notebook Stand                                     | E8F99AA#xxx |
|                  | HP USB 3.0 Port Replicator (Spin)                                   | H1L08AA#xxx |
|                  | HP Universal Port Replicator                                        | E6D70AA#xxx |
|                  | HP 3001pr USB 3 Port Replicator                                     | F3S42AA     |
| <b>Batteries</b> | HP UltraSlim Docking Station                                        | B9C87AA#xxx |
|                  | HP BA06 XL Long Life Battery (Slice)                                | H4Q48AA     |
| <b>Security</b>  | HP Docking Station Cable Lock                                       | AU656AA#XXX |
|                  | HP UltraSLim Keyed Cable Lock                                       | H4D73AA     |
| <b>Monitors</b>  | HP EliteDisplay E231 23-inch LED Backlit Monitor                    | C9V75AA     |
|                  | HP EliteDisplay S240ml 23.8-in IPS LED Backlit MHL Monitor          | F4M47AA     |
|                  | HP EliteDisplay S140u 14-inch USB Portable Monitor                  | G8R65AA     |
|                  | HP ProDisplay P221 21.5-inch LED Backlit Monitor                    | C9E49AA     |



### *Options and Accessories (sold separately and availability may vary by country)*

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### Summary of Changes

| Date of change:   | Version History:        |                  | Description of change:                       |
|-------------------|-------------------------|------------------|----------------------------------------------|
| June 13, 2014     | From May'14 to June'13  | Added<br>Removed | Systems Unit Specs<br>Footnote for SureStart |
| June 18, 2014     | From June 13 To June 18 | Added            | Battery life and disclaimers                 |
| June 26, 2014     | From v3 to v4           | Changed          | Options names                                |
| July 2, 2014      | From v4 to v5           | Changed          | Weights, ports                               |
| July 14, 2014     | From v5 to v6           | Changed          | Environmental data                           |
| September 9, 2014 | From v6 to v7           | Added            | Monitor, cases, sleeves & docking options    |
| October 8, 2014   | From v7 to v8           | Added            | Web-Only Support OS list                     |

